



# Federal Register

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**Wednesday,  
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**Part III**

## **Department of Transportation**

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**Federal Motor Carrier Safety  
Administration**

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**49 CFR Parts 385, 386, 390, et al.  
Hours of Service of Drivers; Proposed  
Rule**

**DEPARTMENT OF TRANSPORTATION****Federal Motor Carrier Safety Administration****49 CFR Parts 385, 386, 390, and 395**

[Docket No. FMCSA–2004–19608]

RIN 2126–AB26

**Hours of Service of Drivers****AGENCY:** Federal Motor Carrier Safety Administration (FMCSA), DOT.**ACTION:** Notice of proposed rulemaking.

**SUMMARY:** To promote safety and to protect driver health, FMCSA proposes to revise the regulations for hours of service for drivers of property-carrying commercial motor vehicles (CMVs). To achieve these goals, the proposed rule would provide flexibility for drivers to take breaks when needed and would reduce safety and health risks associated with long hours. The proposed rule would make seven changes from current requirements. First, the proposed rule would limit drivers to either 10 or 11 hours of driving time following a period of at least 10 consecutive hours off duty; on the basis of all relevant considerations, FMCSA currently favors a 10-hour limit, but its ultimate decision will include a careful consideration of comments and any additional data received. Second, it would limit the standard “driving window” to 14 hours, while allowing that number to be extended to 16 hours twice a week. Third, actual duty time within the driving window would be limited to 13 hours. Fourth, drivers would be permitted to drive only if 7 hours or less have passed since their last off-duty or sleeper-berth period of at least 30 minutes. Fifth, the 34-hour restart would be retained, subject to certain limits: The restart would have to include two periods between midnight and 6 a.m. and could be started no sooner than 168 hours (7 days) after the beginning of the previously designated restart. Sixth, the definition of “on duty” would be revised to allow some time spent in or on the CMV to be logged as off duty. Seventh, the oilfield operations exception would be revised to clarify the language on waiting time and to state that waiting time would not be included in the calculation of the driving window.

**DATES:** You may submit comments by February 28, 2011.**ADDRESSES:** You may submit comments, identified by docket number FMCSA–2004–19608 or RIN 2126–AB26, by any of the following methods:

- *Federal eRulemaking Portal:* <http://www.regulations.gov>.

- *Fax:* 202–493–2251.

- *Mail:* Docket Management Facility (M–30), U.S. Department of Transportation, West Building Ground Floor, Room W12–140, 1200 New Jersey Avenue, SE., Washington, DC 20590–0001.

- *Hand delivery:* Same as mail address above, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The telephone number is 202–366–9329.

To avoid duplication, please use only one of these four methods. See the “Public Participation and Request for Comments” portion of the **SUPPLEMENTARY INFORMATION** section below for instructions on submitting comments.

**FOR FURTHER INFORMATION CONTACT:** Mr. Thomas Yager, Chief, Driver and Carrier Operations Division, Federal Motor Carrier Safety Administration, U.S. Department of Transportation, 1200 New Jersey Avenue, SE., Washington, DC 20590, (202) 366–4325.

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**I. Public Participation and Request for Comments**

FMCSA encourages you to participate in this rulemaking by submitting comments, data, and related materials. All comments received will be posted without change to <http://www.regulations.gov> and will include any personal information you provide.

**A. Submitting Comments**

If you submit a comment, please include the docket number for this rulemaking (FMCSA–2004–19608), indicate the specific section of this document to which each comment applies, and provide a reason for each suggestion or recommendation. You may submit your comments and material online or by fax, mail, or hand delivery, but please use only one of these means. FMCSA recommends that you include your name and a mailing address, an e-mail address, or a phone number in the body of your document so that FMCSA can contact you if there are questions regarding your submission. However, see the Privacy Act section below regarding availability of this information to the public.

To submit your comment online, go to <http://www.regulations.gov> and click on the “submit a comment” box, which will then become highlighted in blue. In the “Document Type” drop down menu, select “Proposed Rules,” insert “FMCSA–2004–19608” in the “Keyword” box, and click “Search.” When the new screen appears, click on “Submit a Comment” in the “Actions” column. If you submit your comments by mail or hand delivery, submit them

in an unbound format, no larger than 8 1/2 by 11 inches, suitable for copying and electronic filing. If you submit comments by mail and would like to know that they reached the facility, please enclose a stamped, self-addressed postcard or envelope.

FMCSA will consider all comments and material received during the comment period and may change this proposed rule based on your comments.

#### B. Viewing Comments and Documents

All public comments, as well as documents mentioned in this notice, are available in the public docket. To view them, go to <http://www.regulations.gov> and click on the "read comments" box in the upper right hand side of the screen. Then, in the "Keyword" box insert "FMCSA-2004-19608" and click "Search." Next, click the "Open Docket Folder" in the "Actions" column. Finally, in the "Title" column, click on the document you would like to review. If you do not have access to the Internet, you may view the docket online by visiting the Docket Management Facility in Room W12-140 on the ground floor of the Department of Transportation West Building, 1200 New Jersey Avenue, SE., Washington, DC 20590, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

#### C. Privacy Act

Anyone may search the electronic form of comments received into any of our dockets by the name of the individual submitting the comment (or signing the comment, if submitted on behalf of an association, business, labor union, etc.). You may review Department of Transportation's (DOT) Privacy Act Statement for the Federal Docket Management System published in the **Federal Register** on January 17, 2008 (73 FR 3316), or you may visit <http://edocket.access.gpo.gov/2008/pdf/E8-785.pdf>.

## II. Overview

**Goals.** The goal of this HOS proposed rule is to improve safety while ensuring that the requirements would not have an adverse impact on driver health. The proposed rule also would provide drivers with the flexibility to obtain rest when they need it and to adjust their schedules to account for unanticipated delays. FMCSA has also attempted to make the proposed rule easy to understand and readily enforceable.

Admittedly, design of HOS rules raises conceptual and empirical challenges. The impact of such rules on CMV safety is difficult to separate from the many other factors that affect heavy-vehicle crashes. The 2008 FMCSA final

rule on HOS noted that "FMCSA has consistently been cautious about inferring causal relationships between the HOS requirements and trends in overall motor carrier safety. The Agency believes that the data show no decline in highway safety since the implementation of the 2003 rule and its re-adoption in the 2005 rule and the 2007 [interim final rule]" (73 FR 69567, 69572, November 19, 2008). While that statement remains correct, the total number of crashes, though declining, is still unacceptably high. Moreover, the source of the decline in crashes is unclear.

FMCSA believes that the HOS regulations proposed today, coupled with the Agency's many other safety initiatives and assisted by the actions of an increasingly safety-conscious motor carrier industry, would result in a significant improvement in safety. We note as well that the proposed rule is intended to protect drivers from the serious health problems associated with excessively long work hours, without significantly compromising their ability to do their jobs and earn a living.

**Summary of the Proposed Rule.** The proposed rule would change the existing HOS regulations in a number of ways. The required off-duty period would remain at a minimum of 10 consecutive hours. Driving time between two such periods could either be 10 hours, as it was prior to the 2003 rule (68 FR 22455; April 28, 2003), or 11 hours. While the 10-hour rule is currently FMCSA's currently preferred option, the Agency discusses both alternatives in detail below. The driving window would remain, on most days, at 14 consecutive hours after coming on duty following a break of at least 10 hours; but a driver would be permitted to be on duty for only 13 hours of that time as opposed to the current 14 hours. A driver would also be required to be released from duty at the end of the 14-hour period. To provide drivers with the ability to rest, if needed, or to respond to unanticipated conditions, twice a week, drivers would be allowed to extend the driving window to 16 hours. Extending the driving window, however, would not increase either driving or on-duty time. As a consequence of the 13-hour on-duty limit, a driver using the extension would need to take up to 3 hours off duty during that duty day. A driver would be required to go off duty at the end of the 16-hour driving window.

To prevent excessive hours of continuous driving, the proposed rule would permit drivers to drive only if 7 hours or less have passed since the driver's last off-duty or sleeper-berth

period of at least 30 minutes. For example, if a driver began driving immediately after coming on duty, he or she could drive until the 7th hour. However, because the required breaks would be linked to time on duty, a driver who first worked 3 hours at a terminal and then began driving would have to take a half-hour (or longer) break no later than the end of the 4th hour of driving (i.e., the 7th hour on duty). The proposed rule would give drivers great flexibility in scheduling their breaks. If someone began driving immediately after coming on duty and took an early break between hours 2.5 and 3.0, he or she could drive 7 consecutive hours before reaching the 10-hour limit. If the 11-hour driving-time limit was adopted, the early break would have to occur between hours 3.5 and 4.0 to allow 7 consecutive hours of driving before reaching the end of the 11th hour. Conversely, a driver could drive until the 7th hour before taking the break, whether the daily limit was 10 or 11 hours. Assuming that truckers do nothing but drive (which is unrealistic) and want to minimize their breaks, they could take the required half-hour break anywhere between hours 2.5 and 7 of a 10-hour driving period or between hours 3.5 and 7 of an 11-hour driving period. Working beyond the 7th hour without a break is permitted, however, as long as the driver does not actually drive a CMV after the 7th hour. In practice, a driver who took a half-hour break at 6 to 7 hours after coming on duty would not be required to take a second break during the driving window of 14 hours.

The weekly limits in the current rule (60 hours on duty in 7 days or 70 hours on duty in 8 days) would remain unchanged. The 34-hour restart allowed under the current rule, which permits drivers to restart the 60- or 70-hour "clock" by taking a break of at least 34 consecutive hours off duty, would be retained, but with certain limitations. First, any restart would have to include two periods between midnight and 6 a.m. Depending on when the restart begins, 34 consecutive hours off duty could satisfy this requirement. In other instances, the restart period would have to be longer to incorporate the two nights. The two-night requirement would have no impact on the majority of drivers who regularly drive during the day. Drivers who regularly drive at night would have to take longer restarts to obtain two nights of sleep. Second, a driver would be allowed to begin another 34-hour off-duty period no sooner than 168 hours (7 days) after the beginning of the previous restart.

Limiting the restart to once in 7 days effectively reduces the number of hours a driver could be on duty and drive from an average of about 82 hours in 7 days under the current rule to an average of 70 hours. Third, the driver would have to designate whether a period of 34 hours or more off duty was to be considered a restart.

FMCSA is not proposing any changes to the sleeper-berth rule at this time. Drivers using the current rule must take at least 8, but less than 10, consecutive hours in the sleeper berth and a shorter break of at least 2 hours off duty or in the sleeper berth (in lieu of the standard 10 consecutive hours off duty). The shorter of the breaks used under the sleeper berth rule is included in the calculation of the driving window. The use of the sleeper berth rule, however, would be affected by the other changes proposed. The driving window would be 14 to 16 hours long; duty time would be limited to 13 hours. A driver using the 16-hour window could count the shorter period toward the 3 hours of breaks that the driver would have to take to reach 16 hours; the shorter period, therefore, would not reduce the 13 hours of on-duty time. When the driver uses the 14-hour window, the shorter break will reduce the 13-hour on-duty time by at least 1 hour.

FMCSA proposes to change the definition of “on duty” to allow team drivers to log as off duty up to 2 hours spent in the passenger seat immediately before or after a period of 8 or more hours in the sleeper berth while the other team member is driving. FMCSA is also proposing additional language that would exclude time spent resting in a non-moving CMV from the definition of “on duty” time.

Finally, FMCSA is proposing to make drivers and motor carriers potentially liable for the maximum penalty available if they drive or permit someone to drive 3 or more hours over the 10/11-hour driving-time limit. This provision targets egregious violations of the driving-time limits.

The Agency has attempted to structure these requirements to protect safety and health while maintaining industry flexibility and minimizing the impact on drivers working more reasonable schedules. Because the drivers who work very extensive hours are a relatively small minority, FMCSA does not anticipate that this rule would have significant adverse impact on the industry. Since the drivers who work to the limits of the current rule are those most likely to develop fatigue over the course of the day and week, a reduction in their driving hours should lead to

reductions in fatigue-related crashes. Preventing these crashes and reducing relative crash risk overall to improve safety is the principal goal of the HOS regulations.

Although the Agency is primarily concerned with highway safety, FMCSA anticipates an additional benefit from reducing allowable daily and weekly work hours for the drivers with high-intensity schedules. Recent research indicates that inadequate sleep is associated with increases in mortality. This effect is believed to involve an increase in the propensity for workplace (and leisure time) accidents and in mortality due to an increase in the incidence of high blood pressure, diabetes, cardiovascular disease, and other health problems; some of these conditions could disqualify drivers for medical reasons. Since increases in hours worked are associated with decreases in hours spent sleeping, and truck drivers working high-intensity schedules get significantly less than the 7 hours of sleep required for optimal mortality, cutting back on such schedules should reduce, to some extent, mortality among these drivers. These benefits should be counted as outcomes of reductions in total work allowed to drivers.

TABLE 1—SUMMARY OF 10-YEAR COSTS AND BENEFITS FOR PROPOSED RULE  
[Millions 2008\$]

	Option 2	Option 3	Option 4
7% Discount Rate:			
Costs .....	\$7,246	\$3,662	\$16,213
Benefits .....	9,913	7,562	13,232
Net Benefits .....	2,667	3,900	(2,981)
3% Discount Rate:			
Costs .....	8,748	4,394	19,639
Benefits .....	12,040	9,184	16,071
Net Benefits .....	3,292	4,789	(3,568)

**III. Legal Basis**

This proposed rule is based on the authority of the Motor Carrier Act of 1935 and the Motor Carrier Safety Act of 1984 (1984 Act). The Motor Carrier Act of 1935 provides that “The Secretary of Transportation may prescribe requirements for (1) qualifications and maximum hours of service of employees of, and safety of operation and equipment of, a motor carrier; and, (2) qualifications and maximum hours of service of employees of, and standards of equipment of, a motor private carrier, when needed to promote safety of operation” (Section 31502(b) of Title 49 of the United States Code (49 U.S.C.)).

The HOS regulations proposed today concern the “maximum hours of service

of employees of \* \* \* a motor carrier” (49 U.S.C. 31502(b)(1)) and the “maximum hours of service of employees of \* \* \* a motor private carrier” (49 U.S.C. 31502(b)(2)). The adoption and enforcement of such rules were specifically authorized by the Motor Carrier Act of 1935. This proposed rule rests on that authority.

The 1984 Act provides concurrent authority to regulate drivers, motor carriers, and vehicle equipment. It requires the Secretary of Transportation to “prescribe regulations on commercial motor vehicle safety. The regulations shall prescribe minimum safety standards for commercial motor vehicles.” Although this authority is very broad, the 1984 Act also includes

specific requirements: “At a minimum, the regulations shall ensure 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)). The United States Court of Appeals for the District of Columbia Circuit (DC Circuit) has said with regard to 49 U.S.C. 31136(a)(4) that “the statute

requires the agency to consider the impact of the rule on ‘the physical condition of the operators,’ not simply the impact of driver health on commercial motor vehicle safety. \* \* \* It is one thing to consider whether an overworked driver is likely to drive less safely and therefore cause accidents. Whether overwork and sleep deprivation have deleterious effects on the physical health of the driver is quite another.” *Public Citizen et al. v. FMCSA*, 374 F.3d 1209, 1217 (DC Circuit 2004). This proposal would improve both highway safety and the health of CMV drivers.

This proposed rule is also based on the authority of the 1984 Act and addresses the specific mandates of 49 U.S.C. 31136(a)(2), (3), and (4). Section 31136(a)(1) mainly addresses the mechanical condition of CMVs, a subject not included in this rulemaking. To the extent that the phrase “operated safely” in paragraph (a)(1) encompasses safe driving, this proposed rule also addresses that mandate.

Before prescribing any regulations, FMCSA must also consider their “costs and benefits” (49 U.S.C. 31136(c)(2)(A) and 31502(d)). Those factors are also discussed in this proposed rule.

#### IV. Background

##### A. History

For drivers of CMVs, HOS have been regulated since December 1937 when the Interstate Commerce Commission (ICC) promulgated the first Federal HOS rules. The rules were revised significantly in 1938 and 1962. The 1938 revision limited drivers to 10 hours of driving in 24 hours with at least 8 hours off duty; drivers could be on duty 60 hours in 7 days or 70 hours in 8 days. The 1962 revision dropped the 24-hour requirement, effectively allowing drivers to drive 10 hours and take 8 hours off, then drive again. (See the May 2, 2000, notice of proposed rulemaking (NPRM) for a detailed history of the provisions (65 FR 25540)).

The 2000 NPRM proposed a comprehensive revision of the HOS regulations in response to the ICC Termination Act of 1995. The new rules were to be science-based; the Agency collected relevant studies and completed its own comprehensive Commercial Motor Vehicle Driver Fatigue and Alertness Study, a joint undertaking with Canada and the trucking industry. FMCSA assembled an expert panel of recognized authorities on traffic safety, human factors, and fatigue to review the science and evaluate regulatory alternatives. FMCSA conducted eight nationwide public

hearings on the NPRM and three 2-day public roundtable discussions. On April 28, 2003, the Agency promulgated a final rule (68 FR 22455).

The 2003 rule made significant changes in the rules for property-carrying operations. Driving time was extended from 10 to 11 hours, but the driving window was limited to 14 consecutive hours after coming on duty (as opposed to the previous 15 cumulative on-duty hours). The daily rest period was extended from 8 to 10 hours. The weekly limits were unchanged, but drivers were allowed to restart the calculation of weekly hours anytime they took an off-duty break of at least 34 consecutive hours (the 34-hour restart). Drivers using sleeper berths were allowed to accumulate the equivalent of 10 consecutive hours off in two periods, neither of which could be less than 2 hours. (See the 2003 final rule for a detailed discussion of the changes.)

On June 12, 2003, Public Citizen, Citizens for Reliable and Safe Highways, and Parents Against Tired Truckers filed a petition to review the 2003 HOS rules with the DC Circuit. On July 16, 2004, the DC Circuit issued an opinion holding “that the rule is arbitrary and capricious [under the Administrative Procedure Act (APA)] because the agency failed to consider the impact of the rules on the health of drivers, a factor the agency must consider under its organic statute” and vacated the rule (*Public Citizen et al. v. FMCSA*, 374 F.3d 1209, at 1216). Congress then directed that the 2003 regulations would remain in effect until the effective date of a new final rule addressing the issues raised by the Court or September 30, 2005, whichever occurred first.<sup>1</sup>

On August 25, 2005, FMCSA published a final rule that addressed driver health issues; it also retained the 11 hours of driving, 14-hour driving window, 10 hours off duty, and the 34-hour restart (70 FR 49978). The rule revised the sleeper-berth provision to require at least 8, but less than 10, consecutive hours in the sleeper berth, providing drivers with the opportunity to obtain 7 to 8 hours of uninterrupted sleep each day. Drivers using the sleeper berth exception had to take an additional 2 hours either off duty or in the sleeper berth, which is included in the calculation of the 14-hour driving window. The 2005 rule also provided an exception for drivers who operate within 150 air-miles of their work reporting location and who drive CMVs

that do not require a commercial driver’s license (CDL) to operate. To enable these short-haul carriers to meet unusual scheduling demands, the driver could use a 16-hour driving window twice a week. (See the 2005 final rule for a detailed discussion of the changes and a discussion of driver health issues.)

Public Citizen and others challenged the 2005 rule on several grounds, as did the Owner-Operator Independent Drivers Association (OOIDA). On July 24, 2007, the DC Circuit rejected OOIDA’s arguments, which focused on the sleeper-berth provision, but accepted part of Public Citizen’s arguments. The DC Circuit concluded that FMCSA did not satisfy the APA’s requirements to explain its reasoning and provide an opportunity for notice and comment on portions of the regulatory evaluation; the Court, therefore, vacated the 11-hour driving-time and 34-hour restart provisions (*OOIDA v. FMCSA*, 494 F.3d 188 (DC Cir. 2007)).

FMCSA published an interim final rule (IFR) on December 17, 2007 (72 FR 71247), to prevent disruption of both enforcement and compliance while the Agency responded to the issues identified by the Court. The IFR repromulgated both 11 hours of driving time and the 34-hour restart. In response to the Court’s findings, the preamble to the IFR included a detailed explanation of the Agency’s time-on-task methodology (72 FR 71252 *et seq.*). On November 19, 2008, FMCSA published the provisions of the IFR as a final rule (73 FR 69567).

On December 18, 2008, Advocates for Highway and Automotive Safety, Public Citizen, the International Brotherhood of Teamsters, and the Truck Safety Coalitions (HOS petitioners) petitioned FMCSA to reconsider the research and crash data justifying the 11-hour driving rule and the 34-hour restart provision. FMCSA denied the petition.<sup>2</sup> On March 9, 2009, the HOS petitioners filed a petition for review of the 2008 rule in the DC Circuit and, on August 27, 2009, filed their opening brief. However, in October 2009, DOT, FMCSA, and the HOS petitioners reached a settlement agreement.

Pursuant to the agreement, the petition for review is in abeyance pending FMCSA’s publication of this NPRM. After considering all the comments, FMCSA must publish a final rule by July 26, 2011.

<sup>1</sup> Section 7(f) of the Surface Transportation Extension Act of 2004, Part V, Public Law 180–310; 118 Stat. 1144.

<sup>2</sup> January 16, 2009, docket # FMCSA–2004–19608–3525.1.

### B. Process

As part of its process for considering revisions to the HOS rule, FMCSA sought input and comments from its Motor Carrier Safety Advisory Committee (MCSAC) and from the public, including carriers, drivers, unions, safety advocacy groups, and others. The latter comments were provided at five public listening sessions. In addition, the HOS docket has been open and comments filed during this period have been reviewed.

**MCSAC.** MCSAC was established by the Secretary of Transportation on September 8, 2006, and is charged with providing advice and recommendations to the FMCSA Administrator on motor carrier safety programs and regulations. In the fall of 2009, FMCSA asked its MCSAC to identify ideas and concepts that the Agency should consider in developing the HOS regulations. At the time, MCSAC membership was comprised of 15 experts from the motor carrier industry, safety advocates, and safety enforcement sectors.<sup>3</sup> In addition, three organizations (Public Citizen, the Teamsters, and the Truck Safety Coalition) participated in the meetings as guests. MCSAC met in December 2009 and February 2010 to discuss the regulations. On February 2, 2010, they forwarded a report to the Administrator. The full report is available in the Docket (FMCSA–2004–19608–3867). The committee's principles included the following:

- The rule should be simple, enforceable, and compliance should be measurable.
- FMCSA should consider expert opinion, all available data, and feedback from HOS listening sessions.
- FMCSA should consider the appropriateness (implementation vs. enforcement) of a one-size-fits-all approach.
- Safety, not profit/productivity, should be considered first and foremost.
- A guiding principle should be how driver health relates to the safety of the public.
- FMCSA should consider total cost to industry.

In the short term, MCSAC

recommended that FMCSA consider:

- All available valid research on all impacts (e.g., health), including new research performed since the 2008 HOS rule. Additionally, FMCSA should review studies that were not considered under the previous rulemakings (e.g.,

shift work studies and epidemiological research findings that are related to driver health and HOS).

- Each incremental hour on duty and its effect on driver fatigue, beginning with the first hour. Determine whether there is a fatigue breakpoint (a point in time after which performance declines).
- Driving schedules in light of circadian rhythm research and crash rates by time of day, while balancing the effects on the general public.
- Industry safety performance data under the current rule (e.g., crash data, fatalities, injuries, compliance-related data, exposure data).
- Existing data on the total cost to society of all fatigue-CMV crashes (not just fatal or injury crashes) (e.g., economic paralysis of section of city/State to clear a CMV crash; medical care for those seriously injured without insurance; lost productivity; fuel costs; air pollution; costs to families of persons injured).
- Current practices, research, and technologies within other transportation modes and industries regarding fatigue. Consider international approaches to HOS, including those of Canada, the European Union (EU), Australia, and Japan. For example, EU requires electronic logging devices with well-educated enforcement. Also, in Canada, drivers may "borrow" driving time from the following day while meeting a weekly average.
- Allowing more flexibility with respect to rest breaks and driving time, including, but not limited to, sleeper berth rest breaks.

**Listening sessions.** To solicit further information, FMCSA held five public listening sessions in January and March 2009, in Washington, DC, Dallas, TX, Los Angeles, CA, Davenport, IA, and Louisville, KY. The Davenport session was held adjacent to a large truck stop and the Louisville session was held at the Mid-America Trucking Show to encourage participation by drivers. The sessions were webcast, and comments were also submitted via toll-free telephone lines. Approximately 300 individuals and organizations spoke at the sessions. The majority of the speakers were drivers and carriers or associations representing them; most of the drivers who spoke were in for-hire, long-haul, truck-load (TL) operations.

In general, the carriers, drivers, and their associations supported the existing rule with two exceptions. They supported maintaining 11 hours of driving time and the 34-hour restart. Carriers and their associations stated that the 11 driving hours provided flexibility and that some carriers had redesigned routes and schedules to use

the full 11 hours; they believed that changing to a shorter period would be costly. Drivers indicated that they use the restart frequently; when away from home, they may take no more than 34 hours off; at home, the restart is usually longer. Some drivers argued for a shorter restart (24 hours or less).

Many, but not all, drivers objected to the 14-hour consecutive period, saying that it forced them to drive when they were tired because breaks were included in the calculation of the driving window. They also said that the rule made it difficult to avoid congestion because they had to drive during rush hours; under the pre-2003 rule, they could have pulled off the road and waited until congestion eased without reducing their available duty hours. Drivers sought more flexibility. Specifically, they asked FMCSA to make the 14-hour period cumulative (i.e., off-duty time would not be included in calculation of the driving window) or allow the driving window to be extended to 16 or 18 hours. A few drivers supported the current 14-hour rule, stating that it prevented carriers and brokers from forcing them to log waiting time at shippers and receivers as off duty so they could work longer days.

Many drivers and carriers objected to the existing sleeper berth rule that allows 10 hours off duty to be taken in two periods, one of 8 to 10 hours and the other of 2 or more hours, with the shorter period included in the calculation of the driving window. Team drivers in particular wanted the flexibility to be able to divide their 8-hour sleeper berth time into shorter periods (e.g., 4 + 4 hours, 5 + 3 hours, etc.). Drivers who spoke on this issue asked that the shorter period not be included in the calculation of the duty period.

Representatives of the safety advocacy groups and the Teamsters generally supported the 14-consecutive-hour provision, but opposed 11 hours of driving and the 34-hour restart because these provisions allow long days of continuous work and work weeks up to 84 hours in 7 days. They urged FMCSA to consider the body of research on the effects of long hours on performance and health and to establish a 24-hour circadian schedule.

Drivers also raised several issues that affect them, but are outside of FMCSA's statutory authority. The number of available areas where truck drivers can safely stop and rest, although never adequate, has been reduced in the last few years as some States have closed rest areas for budgetary reasons. Drivers stated that the lack of safe rest areas

<sup>3</sup> Eight new members were added to the MCSAC on June 8, 2010. Representatives of the Teamsters and the Truck Safety Coalition were among the groups added to the MCSAC. See <http://mcsac.fmcsa.dot.gov/members.htm>.

made it difficult for them to find a place to take their 10-hour off-duty period. A number of drivers also stated that the current methods of paying many drivers (by the mile or load) provide shippers with no incentive to load or unload a truck promptly. Independent owner-operators and smaller carriers complained that they could spend 30 to 40 hours of unpaid time a week waiting for shippers. Finally, drivers stated that anti-idling laws adopted by some State and local governments to reduce pollution can make it difficult to sleep because they cannot run their air conditioning or heating. FMCSA acknowledges these complaints; but, as explained in previous HOS rulemakings, the Agency does not have the statutory authority to address these issues.

### C. Description of Industry

The trucking industry comprises hundreds of thousands of carriers and millions of drivers moving goods locally or in long hauls between cities. The industry is diverse, and different sectors have different operational characteristics. The industry can be divided in a number of ways: Private versus for-hire; long-haul versus short-haul; TL versus less than truckload (LTL). Private carriers are not trucking firms; they are manufacturers, distributors, or retailers that move their own goods among factories, distribution centers (warehouses), and retail outlets. Their drivers generally operate on a regular basis over routes set by the locations of their own facilities and those of their customers. For-hire carriers are in the transport business; they move goods for their customers. An LTL carrier usually picks up and delivers small shipments in a local area served by one of its terminals. Shipments are consolidated into loads for large trucks that make long runs to the firm's terminals in other areas. Moves between terminals are almost always overnight on regular routes. The goods moved overnight are delivered the next day by the local drivers at the destination terminal. The TL carriers typically pick up a full load from a shipper and move it directly to the receiver of the goods. Some of their business is regular and predictable under contracts or less-formal agreements. Much of their business is almost random in nature, movements from one place to another being sold and booked on a daily basis. Drivers in random service may not know where they will be at the end of each day. Their runs are often made by day, but many also require night-time driving. Short-haul drivers operate within a local

area; most are not exclusively night-time drivers. Their routes may vary day by day, but they are always in the same general area. They may spend a good part of each day loading and unloading at multiple locations. Although there are exceptions, most long-haul drivers do not load or unload the cargo.

The various segments of the industry are affected differently by HOS provisions. Many short-haul drivers, including unionized drivers who mostly engage in local or LTL operations, operate well within all of the provisions of the rule. LTL firms and many private carriers have set their routes and terminals to stay within the HOS rule. Those who are most affected are long-haul TL carriers. According to the 2007 Commodity Flow Survey, more than 95 percent of the tonnage moved by private carriers is transported less than 250 miles and less than 1 percent is carried more than 500 miles; 500 miles is about the maximum for a 1-day trip. About 12 percent of the tonnage moved by for-hire carriers is transported more than 500 miles; only 4 percent is transported 1,000 miles or more. Overall, 93 percent of the tonnage moved solely by truck is transported in trips of 500 miles or less.<sup>4</sup> This percentage may be rising because a number of the largest TL carriers are shifting to intermodal operations, putting cargo on intermodal trains for moves that require more than a day and making all-truck moves only in regional operations.

### V. Agency Goals

FMCSA set three primary goals as it developed this proposed rule. First, the rule provisions should improve safety by reducing driver fatigue in a cost-effective, cost-justified manner. Second, the rule should ensure that the requirements do not have an adverse effect on driver health. Third, the rule should provide drivers with some flexibility in their schedules to encourage them to take rest breaks when they need them. This section discusses the general rationale for these goals.

#### A. Safety—Fatigue

A fundamental purpose of the HOS regulations is to reduce crash risk in order to improve safety, and as elaborated at length, the Agency has concluded that the proposed rules will have significant safety benefits. Ideally, the Agency would have data to measure crash risk along all of the dimensions for which regulations are proposed. Because the Agency has been not been

able to gather such data, it has based its analysis, in significant part, on share of crashes that are fatigue-coded. The Agency recognizes that using share of crashes that are fatigue-coded could have two possible problems:

a. Accident inspectors may be more likely to code crashes as fatigue-related if the driver has been on the road longer.

b. The share of crashes that are coded as fatigue-related may conceivably increase because the share of crashes caused by other factors goes down. There could be no increase in the *risk* of a fatigue-related crash (the central question), but an increase in the *share* of fatigue-related crashes.

Nonetheless, while the data are not as complete as FMCSA would like them to be, the Agency aimed to limit, to the extent possible, the likelihood that drivers will be fatigued, either when they come on duty or during or at the end of a working period. Fatigue affects performance well before a person becomes sleepy. As a person becomes fatigued, reaction times slow, concentration becomes more erratic, and decision-making is slowed; all of which affect the ability of a driver to respond quickly to a hazardous driving situation. Eventually fatigue reaches a point where the person has trouble staying awake and may be unable to avoid falling asleep.

The fatigue that this rule addresses is primarily that caused by lack of adequate sleep (as opposed to physical fatigue caused by strenuous activity). A regulation cannot compel a driver to sleep when off duty. FMCSA can only ensure that the hours that a driver is allowed to work in a day and a week do not interfere with the opportunity to obtain adequate sleep if the driver works the maximum hours permissible. The studies of restricted sleep show that over days of mild, moderate, or severe sleep restriction (1) alertness and performance degrade as cumulative sleep debt rises; (2) even mild sleep restriction (loss of less than 1 hour of sleep a day) degrades performance over days. Seven to 8 hours of consolidated night-time sleep in each 24 hours appear to sustain performance over multiple days, if not longer, for most people.<sup>5</sup>

<sup>5</sup> Belenky, G., Wesensten, N.J., Thorne, D.R., Thomas, M.L., Sing, H.C., Redmond, D.P., Russo, M.B. & Balkin, T.J., "Patterns of Performance Degradation and Restoration During Sleep Restriction and Subsequent Recovery: A Sleep Dose-Response Study," *Journal of Sleep Research*, Vol. 12, No. 1, March 2003, pp. 1–12. FMCSA–2004–19608–3959.

Van Dongen, H.P., Maislin, G., Mullington, J.M. & Dinges, D.F., "The Cumulative Cost of Additional Wakefulness: Dose-Response Effects on Neurobehavioral Functions and Sleep Physiology

Continued

<sup>4</sup> Bureau of Transportation Statistics (RITA, DOT) and U.S. Census Bureau. "2007 Commodity Flow Survey," April 2010. FMCSA–2004–19608–4024.



Sleep deprivation is classified as acute or chronic. A person who gets little or no sleep for 24 hours will suffer from acute sleep loss; that person's cognitive ability at the end of the period of being awake for 24 hours is significantly impaired. Research indicates that people can recover completely from acute sleep loss with 1 or 2 nights of adequate sleep (7–8 hours). A person who gets an hour or two less sleep per night than needed develops chronic sleep deprivation. Over 5 days, the person accumulates 5 to 10 hours of sleep debt. Sleep research indicates that people who are chronically sleep deprived need at least 2 nights of adequate sleep to recover. Depending on the level of sleep deprivation, individuals may stabilize at a lower level of performance and believe they have recovered, but their performance will deteriorate more rapidly across waking hours.<sup>6</sup> Belenky, G., *et al.* (2003) concluded that this stabilization makes it difficult to recover rapidly to the same level of performance that existed prior to the sleep deprivation even when a person is able to obtain adequate sleep. Van Dongen, H.P., *et al.* (2003) found that chronic sleep restriction to 6 hours or less produced cognitive performance deficits equivalent to up to 2 nights of total sleep deprivation.

The central issue that FMCSA must consider in developing HOS regulations involves *the relative crash risk associated with each hour of driving*. It would be valuable, for example, to know the crash risk in the ninth, tenth, and eleventh hours, and to compare that risk to the risk in other hours. However, as noted above, FMCSA needs additional data to estimate relative crash risk in each hour of driving and hence has decided to consider, as a proxy, how many hours drivers can consistently work over a period of time without becoming sleep-deprived. There are two approaches to answering that question. The Agency can examine data on fatigue-related crashes, and it can review research that measures the amount of sleep that drivers are getting

under the existing rule and compare that to the science on sleep deprivation.

As FMCSA discussed at length in previous HOS rulemakings, the percentage of CMV crashes associated with fatigue is not known. Estimates range from the 1.5 percent to 2.1 percent found in the Trucks in Fatal Accident (TIFA) data<sup>7</sup> to 13 percent in the Large Truck Crash Causation Study (LTCCS)<sup>8</sup> to even higher percentages mentioned in other studies.<sup>9</sup> Because fatigue is difficult to determine after the fact, it is often not coded in crash reports, while, in some cases, it may be coded even when the driver was not fatigued because the driver's log showed long hours at work and investigators assumed fatigue. It is generally believed, however, that fatigue-coding understates the level of fatigue-related crashes. In 2008, large trucks were involved in approximately 365,000 recorded crashes, 3,700 of which involved fatalities, 64,000 involved injuries only, and 297,000 were property-damage only.<sup>10</sup> Even if fatigue is a contributing factor in only a small percentage of crashes, it still has a profound safety impact.

During the 2010 listening sessions, a number of the carriers and their associations argued that the sharp decline in fatal crashes in the past several years is proof that the long hours that may be worked under the existing rule have not reduced safety and may have improved it. The crash rates for CMVs have been declining since 1979; the rates went up slightly in 2004 and 2005 before declining again. Neither the slight increase after the adoption of the existing rule nor the decline thereafter can be definitely associated with the HOS rule. Crashes have multiple causes and the consequences of a crash are affected by many factors—including speed, size of vehicles involved, roadway conditions, and improved safety features in vehicles.

The percentage of fatigue-coded crashes in TIFA fluctuated between 1.5 percent and 2.1 percent between 1998 and 2007. The number of CMV driver

fatalities rose 14 percent between 2003 and 2007 (heavy truck vehicle miles traveled rose only 4 percent), but declined sharply in 2008. (Driver fatalities occur more often in single vehicle crashes, which are more likely to be associated with fatigue.) The decline in 2008, which the industry noted, also occurred in passenger-vehicle-only crashes. In general, crashes decline in recessions, as they did in 1982–83, 1991–92, and 2001–02. The recent decline in crashes is welcome; but it cannot be attributed to any single factor affecting crashes, including implementation of the 2003 rule.

Because the crash data understate fatigue and because crashes often have multiple causes, which make it difficult to determine the role of fatigue even when it is suspected, FMCSA has to look at other research to determine whether the rules require drivers to take enough off-duty time to allow them to obtain sufficient sleep to avoid being fatigued. As noted above, sleep research indicates that humans need between 7 and 8 hours a night to avoid sleep deprivation and accumulating sleep debt. There are individual variations in sleep needs, but the Agency must base its assessment of the regulation on the average driver, not the outliers who need considerably less or more sleep to avoid fatigue. In the Virginia Tech Transportation Institute (VTTI) naturalistic driving study of CMV drivers operating under the 2003 rule, measured sleep averaged 6.15 to 6.28 hours (the average includes both work days and days off); the average on work days was 5.6 hours.<sup>11</sup> These drivers drove at night, which would have reduced their sleep, but they were not working full 14-hour days (less than half of the work shifts identified included driving in the 10th hour; a third did not include driving beyond 8 hours).<sup>12</sup>

Two other surveys covered drivers after the implementation of the 2003 rule. Both asked drivers about the amount of sleep they obtain on working days. Research indicates that self-reports of sleep overestimate sleep by 20 to 60 minutes, particularly for sleep times below 7 hours.<sup>13</sup> Nonetheless the

from Chronic Sleep Restriction and Total Sleep Deprivation," *Sleep*, Vol. 26, No. 2, March 15, 2003, pp. 117–126. FMCSA–2004–19608–3993.

<sup>6</sup> Cohen, D. A., Wang, W., Wyatt, J. K., Kronauer, R. E., Dijk, D.J., Czeisler, C. A. & Klerman, E. B., "Uncovering Residual Effects of Chronic Sleep Loss on Human Performance," *Science Translational Medicine*, Vol. 2, Issue 14ra3, January 13, 2010. FMCSA–2004–19608–4021 and 4021.1.

Balkin, T.J., Rupp, T., Picchioni, D. & Wesensten, N.J., "Sleep Loss and Sleepiness: Current Issues," *CHEST*, Vol. 134, No. 3, September 2008, pp. 653–660. FMCSA–2004–19608–3956. Belenky, G., *et al.* (2003).

<sup>7</sup> Jarossi, L., Matteson, A. & Woodroffe, J., "Trucks Involved in Fatal Accidents Factbook 2007," 2010. FMCSA–2004–19608–4007.

<sup>8</sup> FMCSA, "Large Truck Crash Causation Study Summary Tables," 2007. Retrieved June 8, 2010, from: <http://ai.fmcsa.dot.gov/ltrccs/data/documents/SummaryTables.pdf>. FMCSA–2004–19608–3971.

<sup>9</sup> National Transportation Safety Board (NTSB) has studied single-vehicle crashes and crashes in which the truck driver was killed and estimated that 31 percent of fatal-to-driver accidents may be fatigue-related.

<sup>10</sup> FMCSA, "Large Truck and Bus Crash Facts 2008," March 2010. Retrieved June 8, 2010, from: <http://www.fmcsa.dot.gov/facts-research/LTBCF2008/Index-2008LargeTruckandBusCrashFacts.aspx>.

<sup>11</sup> The 6.15 hour average was derived from all days on which data were collected (excluding vacations); the 6.28 hour average was based on only weeks in which there was data for all 7 days.

<sup>12</sup> Hanowski, R.J., Hickman, J., Fumero, M.C., Olson, R.L. & Dingus, T.A., "The Sleep of Commercial Vehicle Drivers Under the 2003 Hours-of-Service Regulations," *Accident, Analysis and Prevention*, Vol. 39, No. 6, November 2007, pp. 1140–1145. FMCSA–2004–19608–3977.

<sup>13</sup> Lauderdale, D. S., Knutson, K. L., Yan, L.L., Liu, K. & Rathouz, P.J., "Sleep Duration: How Well Do Self-Reports Reflect Objective Measures? The CARDIA Sleep Study," *Epidemiology*, Vol. 19, No.



results are consistent with the findings of other research. The Truck Driver Fatigue Management Survey conducted for FMCSA collected data in 2005 from almost 2,300 unionized LTL drivers.<sup>14</sup> About 60 percent of the respondents drove at night; most respondents drove routes that required fewer than 10 hours of driving and returned home daily. The survey found similar levels of sleep (average 6.23 reported hours of sleep prior to starting a run). The drivers reported an average 6.94 hours of sleep in 24 hours on working days, which means that drivers estimated they were getting about 42 minutes of additional sleep during the working day.

The Bureau of Labor Statistics' (BLS) American Time Use Survey (ATUS) has participants complete a daily log of time spent on various activities for the same day of the week for 60 weeks. For example, a participant will record time spent working, eating, exercising, watching television, and checking e-mail every Monday for 60 weeks.<sup>15</sup> A National Institute for Occupational Safety and Health (NIOSH) analysis of ATUS data on truck drivers from the 2003 to 2006 surveys found that while drivers reported an extra hour of sleep in 2004 compared to 2003, the amount of sleep reported had declined to close to the 2003 level by 2006 and that sleep on working weekend days also declined. The drivers who participated in the survey appear to be mostly local drivers.<sup>16</sup> The decline in sleep as work hours increase is consistent with previous research on CMV drivers that has showed sleep time is a function of the amount of off duty time available, *i.e.*, as off duty time increases so does average nightly sleep time.<sup>17</sup> Table 2 presents the reported sleep of drivers in the 2008 ATUS by hours worked.<sup>18</sup>

6, November 2008, pp. 838–845. FMCSA–2004–19608–4011.

<sup>14</sup> Dinges, D.F. & Malslin, G., "Truck Driver Fatigue Management Survey," May 2006. FMCSA–2004–19608–3968.

<sup>15</sup> Bureau of Labor Statistics, "American Time Use Survey, Census Code 9130, Drivers/Sales Workers and Truck Drivers." Accessed August 18, 2010 from: <http://www.bls.gov/tus/>. FMCSA–2004–19608–4023.

<sup>16</sup> Chen, G.X., Amandus, H. E. & Cezar, C., "Do the Revised Hours of Service Regulations Change Truck Driver Work and Sleep Time?" Chart from the 137th APHA Annual Meeting, November 7–11, 2009. FMCSA–2004–19608–3541.

<sup>17</sup> Balkin, T., Thorne, D., Sing, H., Thomas, M., Redmond, D., Williams, J., Hall, S. & Belenky, G., "Effects of Sleep Schedules on Commercial Vehicle Driver Performance," 2000. FMCSA–2004–19608–2007.

<sup>18</sup> Data extracted from the Bureau of Labor Statistics, "American Time Use Survey, Census Code 9130, Drivers/Sales Workers and Truck Drivers," 2008. FMCSA–2004–19608–4023.

TABLE 2—HOURS SLEPT BY HOURS WORKED—2008 ATUS

Hours worked	Number of driver respondents	Driver average hours slept per day
6 .....	67	8.17
7 .....	61	7.85
8 .....	48	7.70
9 .....	40	7.53
10 .....	32	7.33
11 .....	18	7.34
12 .....	10	6.56

Although the sleep measured by VTTI, which provides the most reliable data on sleep under the current rule, is better than many drivers obtained under the pre-2003 rule, the weekly average (with 2 nights off) of slightly more than 6 hours a night is not enough sleep. The Truck Driver Fatigue Management Survey indicated that fatigue continues to be an issue for a substantial percentage of drivers. About 38 percent of the drivers said they sometimes and 6.7 percent said they often had trouble staying awake while driving. About 13 percent reported that they often or sometimes fell asleep while driving; 47.6 percent said they had fallen asleep while driving in the previous year. Although only 23.4 percent said they often or sometimes felt fatigued while driving, 65 percent reported that they often or sometimes felt drowsy while driving. A third of the drivers reported that they became fatigued on a half or more of their trips. The factor that most drivers stated contributed to fatigue while driving was the amount of sleep before the trip; weather and hours of driving were the next most frequently cited factors.

Drivers at the listening sessions frequently stated that they know when they are tired and, therefore, are the best judges of when they need rest and how much. Research, however, indicates that people are not good at assessing their own level of fatigue. In sleep research on CMV drivers, self-assessments of fatigue and sleepiness show little if any relationship to measured performance and sleepiness.<sup>19</sup> People who are chronically fatigued do not recognize performance impairment; some do not even recognize sleepiness.<sup>20</sup> Drivers appear to equate tiredness with being sleepy, but performance is impaired well before a driver becomes sleepy. Some drivers at the listening sessions noted that they needed naps in the middle of their working day even

<sup>19</sup> Balkin, T.J., *et al.* (2008); Van Dongen, H.P., *et al.* (2003).

<sup>20</sup> Balkin, T.J., *et al.* (2008); Van Dongen, H.P., *et al.* (2003).

though they had a full 10-hour off-duty period prior to starting, which indicates that they are not obtaining adequate sleep during the long off-duty period. The importance of adequate sleep was shown in the VTTI study, which found that in the 24 hours before a critical incident (*i.e.*, crashes, near crashes, and crash-relevant conflicts such as unintended lane deviations), the average sleep was only 5.2 hours, about 0.4 hours less than an average working day. FMCSA believes that fatigue continues to be a problem for CMV drivers working the longest hours. The 2003 rule, however, does not appear to have decreased the daily hours worked, which may partly explain why drivers continue to obtain inadequate sleep. The NIOSH analysis of ATUS data on truck drivers, discussed above, found an increase in drivers working longer hours since the 2003 rule became effective. FMCSA requests comments on additional studies the Agency should consider in developing the final HOS rules.

Ideally, if available, the Agency would use post-2003 data to provide a before and after analysis of the 2003 change from a 10- to an 11- hour limit. It might compare States with different hours limits. Under this approach, the Agency could use the probability of a crash in each hour of driving, not the proportion of crashes that are fatigue-related.

#### B. Driver Health

Adverse effects on driver health must be carefully considered in the formulation of HOS regulations. Driving a CMV, particularly in regional and long-haul operations, involves both long hours of work and long hours of continuous sitting. A growing body of research across industries (described in greater detail in the regulatory impact analysis (RIA) available in the docket) indicates that long hours of work are linked to sleep loss, which in turn is linked to obesity, cardiovascular disease (CVD), diabetes, and a variety of other health impacts.<sup>21</sup> Long hours are also independently associated with obesity.<sup>22</sup> There is no simple linear relationship between the "driver's life" of long hours, protracted sitting, and moderate-to-severe sleep deprivation and one or more health outcomes.

<sup>21</sup> Knutson, K.L., Spiegel, K., Penev, P. & Van Cauter, E., "The Metabolic Consequences of Sleep Deprivation," *Sleep Medicine Review*, Vol. 11, No. 3, June 2007, pp.163–178. FMCSA–2004–19608–4010.

<sup>22</sup> Di Milia, L. & Mummary, K., "The Association Between Job Related Factors, Short Sleep and Obesity," *Industrial Health*, Vol. 47, 2009, pp. 363–368. FMCSA–2004–19608–3967.

Rather this relationship must be viewed as a network of mutually reinforcing effects that result in varying levels of risk for particular outcomes such as CVD. Table 3 reflects current scientific thinking on how this network of relationships acts on health:

TABLE 3: HEALTH HABIT AND RISK RELATIONSHIPS

Long hours .....	→ ... → ... → ...	Insufficient sleep. Obesity. CVD.
Insufficient sleep ..	→ ... → ... → ...	Obesity. High blood pressure. Diabetes.
Sedentary pattern	→ ... → ... → ...	Obesity. Metabolism. Increased risk of mortality.
Obesity .....	→ ... → ... → ... → ... → ... → ...	Obstructive sleep apnea. High blood pressure. CVD. Stroke. Diabetes. Arthritis. Other disease.

The RIA includes a detailed discussion of research related to sleep loss, health effects related to sleep loss, and particularly the biochemical mechanisms that link sleep loss with obesity, diabetes, and CVD. It is important to note that the links between sleep loss and many of the health effects are not simply correlations; in many cases, scientists have been able to identify the biochemical changes associated with sleep deprivation that produce the health effects.<sup>23</sup>

Although sleep loss, long hours, and sedentary work are not the only factors contributing to obesity, the level of obesity among CMV drivers is dramatically higher than among U.S. adult male workers as a whole—67 percent higher for all obesity (about 30 percent of all adult male workers<sup>24</sup> are obese versus 50<sup>25</sup>–55 percent of CMV drivers<sup>26</sup>), and about 3 times greater for

<sup>23</sup> Banks, S. & Dinges, D. F., “Behavioral and Physiological Consequences of Sleep Restriction,” *Journal of Clinical Sleep Medicine*, Vol. 3, No. 5, August 15, 2007, pp. 519–528. FMCSA–2004–19608–3957.

<sup>24</sup> Flegal, K.M., Carroll, M.D., Ogden, C.L. & Johnson, C.L., “Prevalence and Trends in Obesity Among U.S. Adults, 1999–2008,” *Journal of the American Medical Association*, Vol. 303, No. 3, 2010, pp. 235–241. FMCSA–2004–19608–3970.

<sup>25</sup> RoadReady data provided to FMCSA.

<sup>26</sup> Martin, B.C., Church, T.S., Bonnell, R., Ben-Joseph, R. & Borgstadt, T., “The Impact of Overweight and Obesity on the Direct Medical

body mass indices (BMIs) >40 (4.2 percent of all adult male workers versus 12 percent of CMV drivers).<sup>27</sup> As discussed in detail in the RIA, chronic sleep loss is associated with increased mortality. The increased mortality rates associated with obesity are much higher. Hauner, H. (2009) cites a study, published in 2009, on BMI and cause-specific mortality in 900,000 adults that “showed an average loss of 2 to 4 years of life with a BMI between 30 and 34.9; and a BMI between 40 and 45 shortened life by an average of 8 to 10 years.”<sup>28</sup> Finkelstein, E.A., *et al.* (2010) did not find significant impacts below a BMI of 35, but found that BMIs of 35 to < 40 reduced life span for whites by 4 to 5 years; BMIs of 40 and above reduced life spans by 8 to 10 years.<sup>29</sup> Beyond mortality effects, the health conditions that result from sleep deprivation and sedentary work are associated with higher health care costs and the risk that drivers who develop the conditions may fail to meet the medical standards for driving a CMV.

In the 2005 final rule, FMCSA discussed in detail other potential factors associated with health effects, including exposure to particulate matter in diesel fumes, vibration, noise, *etc.*<sup>30</sup> For all of these, it was difficult to develop a dose-response relationship that relates specific hours of exposure to particular health impacts. For diesel exposure, there is the confounding factor that drivers may be less exposed when driving than when stopped at truck stops or terminals. FMCSA supported research conducted by the University of Tennessee to examine factors that are suspected to influence health and performance of CMV drivers—noise, vibration, and cabin air quality of heavy-duty diesel vehicles. These variables were measured both while vehicles were driven and while they were parked with the engine idling. The resulting data will serve as a baseline from which similar future studies can determine if new truck

Costs of Truck Drivers,” *Journal of Occupational and Environmental Medicine*, Vol. 51, No. 2, February 2009, pp. 180–184. FMCSA–2004–19608–4004.

<sup>27</sup> BMI is a measure of body fat based on height and weight. Normal weight is considered a BMI of 18.5 to 24.9. BMI between 25 and 29.9 is considered overweight. BMIs above 30 are considered obese.

<sup>28</sup> Hauner, H., “Overweight—Not Such a Big Problem,” *Deutsches Ärzteblatt International*, Vol. 106, No. 40, 2009, pp. 639–640. FMCSA–2004–19608–3979.

<sup>29</sup> Finkelstein, E.A., Brown, D.S., Wrage, L.A., Allaire, B. T. & Hoerger, T.J., “Individual and Aggregate Years-of-Life-Lost Associated with Overweight and Obesity,” *Obesity*, Vol. 18, No. 2, February 2010, pp. 333–339. FMCSA–2004–19608–4006.

<sup>30</sup> 70 FR 49983, *et seq.*; August 25, 2005.

designs have changed the existing state of these conditions for drivers. Twenty-seven trucks (model years 2006–2008) from four manufacturers were tested. Overall, in-cab noise levels were found to be below the 8-hour standard limits established by the Occupational Safety and Health Administration and FMCSA. Average vibrations from the seats were generally found to be below International Standards Organization-established (but non-regulatory) standard exposures for an 8-hour driving day. Air quality was determined by measuring in-cab concentrations of carbon monoxide, nitrogen oxides and particulate matter less than 2.5 microns aerodynamic diameter. The results indicated that trucks have a tendency to self-pollute the cabs during extended periods parked with the engine idling; on-road concentrations were several orders of magnitude lower. Carbon monoxide concentrations were well below standard permissible exposure levels. During several parked-idling scenarios, particulate matter concentrations exceeded air quality standards for 24-hour and annual averages.<sup>31</sup>

FMCSA has not changed the conclusions it drew in 2005 on health impacts regarding noise, vibration, and air quality. FMCSA has not found any other research that changes the conclusions regarding these health impacts. However, FMCSA emphasizes that it is important to study the chronic conditions of truck drivers. We therefore seek information from the public on conditions that truck drivers face.

### C. Flexibility

As discussed above, drivers at the public listening sessions asked FMCSA to provide some flexibility in the rules so that they could take breaks when they need rest or encounter unexpected delays. FMCSA agrees that drivers should be encouraged to take rest when they need it and has included provisions to incorporate flexibility into schedules. In developing the proposed rule, however, FMCSA was aware that the flexibility that some drivers were seeking, if unconstrained, would simply allow them or their employers to build into their schedules the extended hours that the 2003 rule was intended to curb. FMCSA, therefore, strove to balance flexibility with the need to limit hours of work.

<sup>31</sup> Fu, J. S., Calcagno, J. & Davis, W.T., “Improving Heavy-Duty Diesel Truck Ergonomics to Reduce Fatigue and Improve Driver Health and Performance,” Report # FMCSA–RRR–10–010.

## VI. Discussion of Proposed Rule

### A. Driving Time

For the reasons explained below, while FMCSA views the 10-hour driving limit as the currently preferred option, FMCSA understands that available data are susceptible to more than one interpretation and, consequently, is considering both a 10-hour driving limit and an 11-hour driving limit within one duty day. Commenters are therefore encouraged to submit data or studies that would allow FMCSA to calculate more effectively the difference, if any, in crash risk between a 10- and an 11-hour driving limit. Such a calculation would be especially important in developing benefits estimates.

FMCSA seeks information on the increased probability of a fatigue-related crash during the 11th hour; to obtain such information, FMCSA seeks information on the percentage of total number of hours driven after the 10th hour. With respect to cost estimates, FMCSA seeks information regarding the impact of eliminating the 11th hour of driving on logistics, location centers, distribution centers, just in time inventories, competitiveness with global markets, and delivery of perishable goods. With respect to benefits and costs, FMCSA seeks information with respect to any other process/logistics aspects of driving hours not captured in safety, productivity of drivers, and driver health.

The motor carrier industry operated under a 10-hour driving limit for decades prior to the 2003 rule. FMCSA acknowledged in past rulemakings that the risk associated with driving increases with the number of hours driven. Data from the LTCCS and TIFA show that the prevalence of fatigue-related crashes increases with hours driven, most notably between the 10th and 11th driving hours. LTCCS also found the probability of having a fatigue-coded crash increased with hours worked and awake. Any person driving 11 hours rather than 10 is likely to have been working for a longer period.

The approach to estimating the effects of long driving hours on crash risks assumes that higher ratios of fatigue-related crashes to total crashes implies higher crash rates. It is mathematically possible, though, that the increase in this ratio could come about because the denominator—the total number of crashes—is falling at a faster rate than fatigue-involved crashes as driving hours increase, not because fatigue increases. In other words, crash rates due to weather, mechanical failure, traffic, or road conditions may fall, as

each driver accumulates more hours on the road; and this could make it appear that fatigue is a growing problem whereas it is actually stable. Because fatigue-related crashes more than triple over a long driving day, however, the incidence of crashes caused by other factors would have to drop precipitously for this explanation of the increasing ratio of fatigue crashes to hold. The Agency has no evidence for a pattern in which greater hours on the road would be associated with systematic reductions in crash causes other than fatigue, let alone a pattern so dramatic as to explain the increasing rate of fatigue-related crashes. Hence, the Agency is using the share of fatigue-related crashes in lieu of data on the relative crash risk at each hour.

Generally, studies of time-on-task fatigue have not determined whether, let alone when, the driver took breaks during the driving window, how long a driver had been awake or on duty, or how many hours the driver had worked that week. All of these factors could have an impact on fatigue and on the likelihood of crashes in the later hours of a work day.

The VTTI naturalistic driving study, sponsored by DOT and used for other distracted driving rulemakings, found no increase in risk between the 10th and 11th hours of driving.<sup>32</sup> Indeed, this study found that the first hour of driving is the riskiest and that there is little, if any, difference in risk among other hours. This is significant because the VTTI study is one of the few research studies that looks at 11th hour crash risk using data from the period after 2003, when 11th hour driving became legal for interstate as well as intrastate drivers. This study has been published and subject to peer review.

For several reasons, however, the VTTI study does not appear to be definitive. First, it involved a small sample size of 102 drivers that was not representative of the trucking industry. Second, the study looks at the risk of critical incidents, which include near-crashes and crash-avoidance responses, as well as actual crashes. A definitive link between critical incidents and crash risk has not been established. Third, the study involved drivers who were, with their knowledge, observed by video cameras and other electronic equipment. It is possible that this may have led drivers to behave more

carefully than drivers would have in the absence of observation, leading to an overall underestimate of crash likelihood, and possibly an underestimate of the risk during the eleventh hour. (Note that the observation occurred at all hours and hence the question is whether the observation effect, if it existed, eliminated what would otherwise be an elevated risk in the eleventh hour. There is no reason to believe that being observed would cause drivers to be relatively more careful when driving longer hours than when driving shorter hours.) Fourth, drivers and carriers who participated in the video-surveyed study did so voluntarily, which could skew the study towards participation from more safety-conscious drivers and carriers.

Ideally, FMCSA would want to compare the number of serious crashes in each hour of driving after an extended break to the total driving time by hour of driving or, alternatively, vehicle miles traveled by hour. Conceptually, the degree to which the distribution of crashes falls into later driving hours relative to the distribution of driving would indicate the change in risk for longer trips. The data set would have to be reasonably representative of the drivers affected by the regulations; large enough to provide an accurate picture for individual hours, despite the rarity and randomness of crashes and the relatively small fraction of driving in the later hours; use an unbiased measure of hours; and cover a period in which long driving hours were legal. Furthermore, data on other factors that are known to affect fatigue and crash risks—total time on duty that day and previous days, short breaks, opportunities for restorative rest, time of day, and experience, for example—would have to be included in the data set as well, to allow the time-on-task effect to be isolated.

A data set meeting these criteria is not available at this time. The Agency is requesting commenters to provide any statistically reliable data that would allow specification of relative crash risk of each hour of driving. An answer would turn on knowing the total number of crashes in each hour and the percentage of driving takes place in each hour. The Agency is also interested in knowing whether the risk of fatigue-related crashes increases with additional hours awake or on task, or if the relative crash risk (of all crashes not just the likelihood that crashes will be coded as fatigue) does not increase in later hours, as the VTTI study suggests. There are some large samples of crash data that include the number of hours

<sup>32</sup> Hanowski, R.J., Hickman, J.S., Olson, R.L. & Bocanegra, J., "Evaluating the 2003 Revised Hours-of-Service Regulations for Truck Drivers: The Impact of Time on Task on Critical Incident Risk," *Accident, Analysis and Prevention*, Vol. 41, No. 2, March 2009, pp. 268–275. FMCSA–2004–19608–3978.

of driving, including the LTCCS (published but not peer reviewed) and TIFA; but the time periods these cover are largely or entirely before the HOS rules were changed in 2003. They are also deficient, to varying degrees, in the availability and reliability of information on driver schedules and other factors that affect crash risks. Even more seriously, these studies do not directly provide information on the distribution of all driving by hour for either the drivers involved in the crashes or for comparable drivers. In other words, the data sets provide the numerator for the rate of crashes per hour, but not the denominator.

It is possible to develop distributions of all driving by hour (through surveys, for example), but these cannot be used along with crash data for a different population without biasing the results to an unacceptable degree. Researchers have also collected data on both crashes and total driving hours for the same populations; but, to date, these studies have had samples too small (and narrow, in terms of their subjects' characteristics) to give reliable results on long hours. FMCSA is currently sponsoring a study based on schedule data collected by electronic logs that should be able to solve most of the problems in this type of research, but that study is not complete as of the time of the analysis. Given the imprecise but demonstrated relationship between fatigue, time-on-task, hours awake, and hours worked, there is a reasonable argument for limiting driving time to 10 hours.

Before making a final decision, however, FMCSA is seeking additional studies or data that examine, in greater detail, the differences between driving in the 10th or the 11th hours. FMCSA is also interested in data that indicate when and how frequently the 11th hour is used. It seeks data on how much of the 11th hour is used when a driver goes into the 11th hour. For example, on days in which the driver both picks up and delivers a truckload, how often does the driver have enough duty time to reach the 11th hour? When the driver drives over 10 hours, is it by 5 minutes or by 55 minutes? What is the percentage of driving that takes place in each hour compared to total driving that occurs?

The American Trucking Associations (ATA), in their comments to the docket (April 21, 2010), argued that reducing driving time or on-duty time would increase crashes because more inexperienced drivers would need to be hired to move freight. FMCSA recognizes that there is a risk associated with inexperienced drivers, but believes

that this problem is not as serious as ATA suggests. The 2007 Commodity Flow Survey indicated that about 75 percent of freight is moved in trips of less than 100 miles; with loading and unloading time, it is unlikely that drivers making multiple short trips in a day are able to drive 10, let alone 11 hours. FMCSA's 2007 Field Study found that for longer haul operations (beyond 100 miles) 27 percent of the driving periods extended into the 11th hour.<sup>33</sup> Based on comments about long loading/unloading time that drivers made at the listening sessions, it appears that there will be many days when drivers cannot reach even 10 hours.

In an industry where TL motor carriers experience annual driver turnover above 100 percent, there is always a considerable influx of new drivers each year, as well as experienced drivers changing jobs. Better training and supervision of new drivers would seem a more reasonable response than pushing older drivers to work longer hours. In addition, when FMCSA analyzed this issue in the 2003 RIA, it found the effects of hiring new drivers were almost exactly counterbalanced by the reduced volume of long-haul trucking caused by shifting some traffic to rail.

Nonetheless, there is considerable uncertainty about the extent of the elevated crash risk associated with inexperience; and the possibility that new drivers operating under a 10-hour limit might be involved in more crashes than veteran drivers following an 11-hour rule cannot be ignored. According to BLS figures, employment in the trucking industry has declined by between 9 and 13 percent since 2008—or by 120,000 to 180,000 drivers. A 10-hour limit that required carriers to hire additional personnel might result in the return of experienced drivers largely immune to “rookie” driving mistakes. In any case, while FMCSA currently favors the 10-hour limit, it requests further research and data from the commenters before making a decision.

#### B. Breaks

Under the existing rule, a driver may drive for up to 11 consecutive hours. Although a relatively small percentage of drivers drive without breaks, the complaints from drivers about their inability to take breaks under the 14-hour rule suggest that some may, in fact, work without any breaks. ATA, in their comments to the docket, stated that the full 14-hour day has been built into supply chain planning and that any

reduction would affect productivity. This argument implies that some carriers expect their drivers to work the full 14 hours without a break. A NIOSH analysis of ATUS data on truck drivers found that truck drivers worked 1 hour per day more on weekdays and 3.4 hours per day more on weekends in 2006 compared to 2003.<sup>34</sup>

FMCSA believes that working continuously without a break is neither safe nor healthy. Research indicates that breaks during work can counteract fatigue and reduce the risk of crashes.<sup>35</sup> On the health side, Hamilton, M.T., *et al.* (2007) found that increased standing and moving had a greater effect on the body's ability to block molecular signals that cause metabolic diseases than adding vigorous exercise. They concluded that a non-exercising person may become even more metabolically unfit by sitting too much.<sup>36</sup>

FMCSA wants to give drivers flexibility in scheduling breaks, recognizing that they are not always able to find a place to stop at a particular point in their schedule. Under the proposed rule, drivers would be able to work and drive for up to 7 hours without a required break. Upon reaching the 7th hour since coming on duty, the driver would need to take a break of at least a half hour before resuming driving. The driver could remain on duty without a break after the 7th hour, but could not drive again without taking a break. A driver who took a half hour break at 6.5 or 7 hours after coming on duty would generally not need a second break. But a driver who took a half-hour break 4 hours after coming on duty would need a second break no later than 11.5 hours after coming on duty to drive after that time. This approach should give drivers considerable latitude in scheduling breaks. Many drivers take breaks already; the 2006 FMCSA Truck Driver Fatigue Management Survey indicated that more than 65 percent of the drivers took breaks of a half hour or more during the work day.<sup>37</sup> A break will

<sup>34</sup> Chen, G.X., *et al.* (2009).

<sup>35</sup> Folkard, S. & Lombardi, D. A., “Modeling the Impact of the Components of Long Work Hours on Injuries and ‘Accidents’,” *American Journal of Industrial Medicine*, Vol. 49, No. 11, November 2006, pp. 953–963. FMCSA–2004–19608–4019.

O'Neill, T.R., Krueger, G.P., Van Hemel, S.B. & McGowan, A.L., “Effects of Operating Practices on Commercial Driver Alertness,” 1999. FMCSA–2004–19608–0071.

<sup>36</sup> Hamilton, M. T., Hamilton, D. G. & Zderic, T. W., “Role of Low Energy Expenditure and Sitting in Obesity, Metabolic Syndrome, Type 2 Diabetes, and Cardiovascular Disease,” *Diabetes*, Vol. 56, No. 11, November 1, 2007, pp. 2655–2667. FMCSA–2004–19608–3976.

<sup>37</sup> Dinges, D.F. & Maislin, G. (2006).

<sup>33</sup> FMCSA, “2007 Hours of Service Study,” 2007. Available in the docket: FMCSA–2004–19608–2538.

reduce time-on-task effects and negative health impacts of prolonged sitting.

### C. Duty Time/Driving Window

FMCSA proposes to set a 14-consecutive-hour driving window during which a driver may be on-duty for 13 hours. At the end of the driving window, the driver would have to go off duty. This approach effectively reduces the maximum allowable work during a duty period by 1 hour from the existing rule and gives drivers an opportunity to take up to an hour off duty during the working day. An extra hour off duty per day should increase sleep and mitigate fatigue and health impacts for drivers working to the limits of the rule. Even if drivers do not sleep during the breaks, they can engage in other non-work activity (*e.g.*, eating and talking to friends and family) that might otherwise reduce sleep time during the 10-hour off-duty period. The 1-hour reduction in duty time, in combination with 10 hours of driving time, would maintain the amount of on-duty-not-driving time that the current rule allows for drivers who are using all of their driving time, *i.e.*, 3 hours. If the Agency adopts the 11-hour driving limit, drivers would have only 2 hours of on-duty-not-driving time. FMCSA field studies in 2005 and 2007 indicated that many drivers do not work the 14 hours allowed under the current rule; the reduction to 13 on-duty hours, therefore, should have a limited impact on most drivers.

As discussed above, drivers at the listening sessions and in comments on the previous rulemakings stated that the existing rule discourages them from taking breaks because breaks are included in the calculation of the 14-hour driving window. They asked FMCSA to return to the pre-2003 rule, which did not include off-duty time in the calculation of the 15-hour limit then in effect. FMCSA rejected that approach in 2003 because it enabled drivers to extend the duty day well beyond 15 hours, allowing them to drive 17 to 20 hours or more after starting work, when fatigue can be extreme.

Because FMCSA wants to encourage drivers to take rest breaks when needed and in response to requests for flexibility, the Agency is proposing to allow drivers of property-carrying CMVs to extend the driving window by 2 hours, to 16 consecutive hours, twice in the previous 168 consecutive hours. This is not a calendar week (*e.g.*, 12:01 a.m. Monday to 12 p.m. Sunday, *etc.*) but rather a moving period comprised of the past 168 hours, a period that changes every hour. A driver who used one 16-hour driving window starting at 6 a.m. on Tuesday and a second

beginning at 8 a.m. on Thursday, could not start another 16-hour day until 6 a.m. on the following Tuesday. It should also be noted that taking a 34-hour (or longer) restart does not affect this 168-hour look-back period. In other words, the driver does not get two 16-hour days simply by completing a restart period. The proposed extension would not extend the 13-hour duty time; any driver who wanted to drive to the 16th hour after coming on duty would have to have taken 3 hours of off-duty time during the driving window. Any use of time beyond 14 hours after coming on duty would count as a use of the extension. For example, a driver who worked a 14.5 hour period would be considered to have used one extension. Finally, the driver would have to go off duty at the end of the 16th hour (instead of the end of the 14th hour on normal days).

FMCSA considered extending the driving window to 16 hours daily, but decided that such a change would invite the extended hours that occurred under the pre-2003 rules. Once drivers, carriers, brokers, and shippers knew drivers could work over a 16-hour period daily, they could build that period into their scheduling, as ATA indicates they have done with the 14-hour clock. That could mean drivers would be routinely driving in the 16th hour after the start of the driving window. It would also put the driver on a schedule that could move starting time forward 2 hours a day or 10 hours over a 5-day period. Although it is easier to obtain adequate sleep when moving a schedule forward rather than backward, this level of forward change could seriously disrupt sleep. Unlike drivers on regular schedules who would use the extension only if necessary to deal with unexpected problems (breakdowns, unanticipated congestion) because using it would disrupt their work schedule the next day, long-haul TL drivers are not on a regular schedule and would have no disincentive for using a daily 16-hour extension. FMCSA believes that limiting the 16-hour provision to twice a week and not allowing the extension to add duty time will encourage drivers to use it only when they need flexibility.

A number of drivers at the listening sessions wanted the option of extending the driving window so they could reach a safe location when they were held at a loading dock until they ran out of duty time but still had to move the truck. FMCSA does not believe that such a provision is advisable. It could take several hours to find a safe location in some parts of the country. These drivers were essentially asking for an unlimited extension of the work day as the result

of frequently occurring incidents that should be foreseeable under most circumstances. In addition, it would be impossible to determine whether the driver needed time (however little) to reach a safe location or was simply working beyond the limits. Similarly, drivers argued that they want to be able to stop driving and "sit out" rush hours. Drivers could use the 16-hour window to avoid rush hour congestion twice a week, if they choose to use it that way, but not more frequently. FMCSA requests comments on whether 16 hours is an appropriate extension or whether 15 hours would be sufficient. FMCSA also requests comments on whether the extension should be limited to once a week, twice a week, or allowed more frequently, and whether drivers should be barred from using the extension on consecutive days.

Night drivers, particularly those using the sleeper berth at rest areas or truck stops, may find it difficult to obtain a reasonable amount of sleep in the daytime. Even people who are suffering from acute sleep deprivation (*e.g.*, no sleep for 24 hours) find it hard to sleep during the day under ideal conditions (dark, quiet spaces). FMCSA is soliciting information on patterns of work for night drivers: For drivers who always drive overnight, what is the typical length of their duty day? For drivers who sometimes drive overnight, how frequently do they do that? FMCSA is seeking comments on whether drivers who drive at least 3 hours between midnight and 6 a.m. should have an hour less duty time available (12 hours rather than 13) to provide a longer period to obtain sleep.

### D. Restart and Weekly Limits

The pre-2003 rule prohibited driving after being on duty 60 hours in 7 days or 70 hours in 8 days. This meant that drivers working to the daily limits could run out of hours and would need to take up to 3 days off before they could start driving again. Particularly for long-haul drivers, this prolonged off-duty period away from home was seen as a serious problem. The 2003 final rule allowed drivers to reset their calculation of the 60- or 70-hour limits whenever they take at least 34 consecutive hours off duty. The 34-hour restart provision has been almost uniformly praised by drivers and carriers, except for those who would like a shorter restart. Safety advocacy groups, however, have opposed the restart because it allows a driver who is driving and working to the limits to be on duty up to 84 hours in 7 days and 98 hours in 8 days, a substantial increase over the 60-/70-hour limits of the pre-2003 rule. The

safety advocacy groups have also pointed out that, as a practical matter, the 34-hour restart provides only one night of sleep for night-time drivers.

FMCSA did not amend the restart provision in the 2005 and subsequent rulemakings because it provides substantial economic productivity benefits and because the Agency believed that drivers would not generally take the minimum of 34 hours or work extreme hours; the Agency assumed that drivers would use the restart mainly to simplify bookkeeping and to limit down-time while away from home. Drivers and carriers, however, stated at the listening sessions and in their comments that, especially on the road, drivers do indeed take the minimum restart allowed. Drivers who are on the road for several weeks at a time could, therefore, work very long hours even if they cannot actually reach the maximum allowed because of delays in pick-ups and deliveries. Some carriers with regular schedules stated that they have used the restart to add one work shift a week. If carriers have arranged their schedules so that drivers are on duty for the full 14-hour day, as ATA claimed in its 2010 comment to the docket, then the restart allows a driver to work more than 80 hours in 7 days compared with 60 hours in the pre-2003 rule.

FMCSA continues to believe that allowing drivers to spend less idle time on long runs is sensible, but must balance this against the fact that the restart provision may be exacerbating problems with long hours and resulting fatigue. As discussed above, long weekly hours are associated with sleep loss, fatigue, and serious health impacts. FMCSA is, therefore, proposing two limits to the 34-hour restart. First, any 34-hour or longer period used as a restart would have to include two periods between midnight and 6 a.m. (2 nights of sleep). Second, drivers would be allowed to take only one restart a week; that is, they would be able to begin a restart only 168 hours after the beginning of the previous restart. For example, if a driver ends a work week at Friday at 6 p.m. and begins the restart, the restart could end no earlier than Sunday at 6 a.m. The next restart could not begin earlier than the following Friday at 6 p.m. If the driver ran out of weekly hours at noon on that second Friday, for example, he or she could not count the off-duty hours between noon and 6 p.m. toward the 34 hours.

The 2-night provision would mainly impact night-time drivers because daytime schedules already allow drivers to obtain 2 nights of sleep within the 34-

hour period. For night time drivers, the 2-night provision would extend the required restart provision. Under the NPRM, a driver with a regular night-time schedule would need to take virtually an extra day off duty to meet the requirement for two night-time sleep periods and stay on schedule. ATA argued in its 2010 comment to the docket that, if confronted with this requirement, these drivers would “flip” to a day-time schedule to maximize work time, which would add to congestion. FMCSA notes that many of the drivers who work a regular night-time schedule drive for LTL or local carriers and usually take the weekend off. They will not be affected by this change. ATA also argued that 2 nights off were not needed for night drivers because they could get two sleep periods in 34 hours off. Research on shift workers indicates that on their days off they switch to a regular night-time sleep schedule.<sup>38</sup>

Washington State University conducted a study for FMCSA to determine the effectiveness of the current 34-hour restart provision in restoring performance.<sup>39</sup> The first phase of the study evaluated the effectiveness of the 34-hour restart using a laboratory setting to compare best-case (day-time work) and worst-case (night-time work) scenarios. The study found that a 34-hour break was effective at mitigating sleep loss and consequent performance impairment for day-time workers who obtained 2 nights of sleep, but was not effective for night-time workers who obtained only 1 night of sleep in the break plus two long nap periods. Research indicates that daytime sleep is not as restorative as nighttime sleep.<sup>40</sup> Even when the time is available, the time actually spent sleeping is less during the day than at night.<sup>41</sup> Shift work and night work are associated with less sleep, even when night work is

<sup>38</sup> Kecklund, G. & Åkerstedt, T., “Effects of Timing of Shifts on Sleepiness and Sleep Duration,” *Journal of Sleep Research*, Vol. 4, No. S2, December 1995, pp. 47–50. FMCSA–2004–19608–4008.

<sup>39</sup> Van Dongen, H.P.A. & Belenky, G., “Investigation into Motor Carrier Practices to Achieve Optimal Commercial Motor Vehicle Driver Performance: Phase I,” April 2010. FMCSA–2004–19608–4020.

<sup>40</sup> Lavie, P., “To Nap, Perchance to Sleep—Ultradian Aspects of Napping,” in D. Dinges and R. Broughton (eds.), *Sleep and Alertness, Chronobiological, Behavioral and Medical Aspects of Napping*, New York: Raven Press, Ltd., 1989, pp. 99–120. FMCSA–2004–19608–4032.

<sup>41</sup> Kurumatani, N., Koda, S., Nakagiri, S., Hisashige, A., Sakai, K., Saito, Y., Aoyama, H., Dejima, M. & Moriyama, T., “The Effects of Frequently Rotating Shiftwork on Sleep and the Family Life of Hospital Nurses,” *Ergonomics*, Vol. 37, No. 6, June 1994, pp. 995–1007. FMCSA–2004–19608–4065.

permanent,<sup>42</sup> presumably because of the disrupting effects of circadian cycles.<sup>43</sup> Sleep obtained is not only reduced in length, but also poorer in quality.<sup>44</sup> Although it is not feasible to eliminate nighttime driving, such driving cannot be treated the same as driving during daytime.

Washington State University recently completed a second phase of its study. It has not been published or peer reviewed yet but will be completed soon. Phase II examined a restart provision for night-time drivers that contains two sleep periods between midnight and 6 a.m., with a minimum of 34 hours off duty. In this study, the primary performance measure, the number of lapses on a 10-minute psychomotor vigilance test (PVT), was administered eight times per day in the working periods. The study data showed no significant difference in PVT lapses between the pre-restart and post-restart work periods overall, indicating that the 2-night recovery period was effective at maintaining driver performance.<sup>45</sup> The study included a 58-hour restart period instead of a 34-hour restart period. The Washington State University study has some shortcomings. It utilized a very small sample size of participants (12 drivers). Also, the study took place not on the road, but in a laboratory setting with participants who knew that their behavior was being observed. In addition, the participants were instructed to sleep and were all recruited as perfectly healthy drivers. Because the study included a 58-hour restart time, not a 34-hour restart, the improvements could have been attributable to the extra off-duty period these 12 drivers were getting. In reality, drivers are not always in perfect health, and they cannot be told to sleep at a particular time by FMCSA. Nonetheless, FMCSA believes that the two phases of this study plus the research cited above justify today’s proposal to amend the 34-hour restart by expanding the required restart period and adding a requirement for two off-duty periods

<sup>42</sup> Bonnet, M.H. & Arand, D.L., “We Are Chronically Sleep Deprived,” *Sleep*, Vol. 18, No. 10, 1995, pp. 908–911. FMCSA–2004–19608–4033.

<sup>43</sup> Åkerstedt, T., “Work Hours, Sleepiness and the Underlying Mechanism,” *Journal of Sleep Research*, Vol. 4, Supplement 2, December 1995, pp. 15–22. FMCSA–2004–19608–4064.

<sup>44</sup> Lavie, P., “Ultrashort Sleep-Waking Schedule. III. ‘Gates’ and ‘Forbidden Zones’ for Sleep,” *Electroencephalography and Clinical Neurophysiology*, Vol. 63, No. 5, May 1986, pp. 414–425. FMCSA–2004–19608–4053.

<sup>45</sup> Van Dongen, H.P.A., Jackson, M. & Belenky, G., “Duration of Restart Period Needed to Recycle with Optimal Performance: Phase II,” FMCSA, October 2010.

from midnight to 6 a.m. The 168-hour provision would have the effect of limiting drivers' weekly hours to an average of 70 in 7 days. This represents a substantial reduction from the current limits, but still allows drivers on the road to take restarts that are shorter than required under the pre-2003 rule. Most restarts for day-time drivers would range from 34 hours to 48 hours. Drivers on a regular night schedule would need about 58 hours to obtain 2 nights of sleep and stay on schedule.

Finally, under the proposed rule, drivers would have to designate a specific period as a restart. This provision is intended to help drivers who may have a long break in the middle of the week (e.g., while waiting for the next load or because of illness), but who do not want to use that as a restart even if they are eligible to do so. Drivers may want to postpone use of the restart until a specific time so they can be sure of having the entire 60 or 70 hours available when resuming a full work schedule.

It should be noted that the restart provision is mainly important for drivers who are working long days and who, therefore, reach their 60- or 70-hour limit, which remains unchanged, in less than 7 or 8 days. Drivers who do not work long hours, or do so only on a limited number of days during the week, may never need to use the restart except as a way to simplify keeping track of their hours. For example, a driver could work 10 hours a day for 7 days, take the eighth day off, and continue to work without using the restart provision.

#### E. Sleeper Berth

Prior to 2005, FMCSA's rules allowed drivers to obtain the equivalent of 10 consecutive hours off by taking two periods in the sleeper berth, neither of which could be less than 2 hours long. Drivers, particularly team drivers, frequently divided their time into 5 hours of driving followed by 5 hours in the sleeper berth. In 2005, FMCSA eliminated the split sleeper berth provision and required at least 8 consecutive hours in the sleeper berth so that drivers would have the chance to obtain at least one long sleep period. Drivers using the 8-hour sleeper berth period must also take a second break of at least 2 hours, either in the sleeper berth or off duty. The shorter period is included in the calculation of the 14-hour duty period.

For years, drivers and carriers have expressed concerns about the 2005 revisions. Team drivers have complained that, because it is difficult to sleep in a moving truck, alternating

shorter runs with their co-driver would allow them to stop before they become too tired. Other drivers argued that it is hard to stay in the sleeper berth for 8 consecutive hours. Drivers generally objected to the requirement to include the shorter period in the calculation of the 14-hour window, saying it discourages the use of the provision. Some drivers and carriers have also said that the complexity of the provision makes them reluctant to use it because they are uncertain how it should be logged.

FMCSA recognizes that drivers have concerns about the existing provision, but there is no clear evidence at this time that two short sleep periods can provide the equivalent of one longer period. Emerging research indicates that dividing sleep into two shorter periods results in equal alertness levels,<sup>46</sup> but this is not the only issue. The time of day in which the sleep periods are taken is critically important.

FMCSA is not proposing to change the sleeper berth exception, but the other changes to the rule would have an impact on sleeper berth users. The shorter off-duty or sleeper berth period would be included in the calculation of the driving window, as it is now. Because the driving window (14 hours) would be longer than allowed duty time (13 hours), use of the shorter period would not always reduce available duty time. On days when the driver is using the 16-hour extended window, the shorter period would not reduce duty time unless the period is more than 3 hours or unless the driver takes more than an hour of other breaks during the driving window. On days when the driver is using the 14-hour driving window, use of the sleeper exception would reduce the available duty hours by at least 1 hour.

#### F. Other Issues

*On-duty definition.* In September 2005, ATA petitioned FMCSA to change the definition of "on duty time" to allow team drivers to log as off duty up to 2 hours spent in the passenger seat. Under the existing definition, drivers are on duty if they are in the truck unless they are resting in the sleeper berth. Single drivers may spend the shorter break (at least 2 hours) either in the sleeper berth or off duty. Because one of the team members drives while the other takes his or her break, the result of the rule is that the non-working driver has to

take both periods in the sleeper berth because it is not possible to log the shorter time as off duty while he or she is "in or on upon any commercial motor vehicle."

FMCSA agrees with ATA's recommendation and is proposing to revise the definition of "on duty" to allow a team driver to log as off duty up to 2 hours spent in the passenger seat either immediately before or after the 8-hour period in the sleeper berth. In addition, FMCSA is proposing to exclude from the definition of "on duty," time spent resting in or on a parked CMV. Drivers in the past have noted that the current definition makes it difficult for drivers of CMVs without sleeper berths (known as day cabs) to rest because they were considered to be on duty if they were in a parked truck. In many cases, the safest, most comfortable, and often the only place for such a driver to rest during a duty tour will be in the parked truck.

*Penalties.* FMCSA is proposing to add to the penalty schedule in Appendix B to 49 CFR part 386 a new paragraph that would define as potentially egregious violations of § 395.3(a) or § 395.5(a) any instance where the driver exceeds the driving-time limit (whether 10 or 11 hours) by 3 or more hours. The Agency would consider drivers or motor carriers who commit such violations to be eligible for the maximum civil penalties available.

In determining the amount of any civil penalty, Congress instructed FMCSA to consider a number of factors, including the nature, circumstances, extent, and gravity of the violation committed, as well as the degree of culpability, history of prior offenses, ability to pay, effect on ability to continue to do business, and other such matters as justice and public safety may require. Congress instructed FMCSA to calculate each penalty to induce further compliance (49 U.S.C. 521(b)(2)(D)). Congress, however, also entrusted FMCSA with the responsibility to ensure that motor carriers operate safely by imposing penalties designed to ensure prompt and sustained compliance with safety laws (Section 222 of the Motor Carrier Safety Improvement Act of 1999 (MCSIA), (49 U.S.C. 521 note)). Prompt and sustained compliance with driving-time limits is paramount to the Agency's safety mission; FMCSA believes that making egregious violations eligible for the maximum penalty will help to promote these goals. Although some of the statutory factors in 49 U.S.C. 521(b)(2)(D) may limit the Agency's ability to impose penalties, others—like the extent and gravity of the violation—

<sup>46</sup> Mollicone, D.J., Van Dongen, H.P., Rogers, N.L. & Dinges, D.F., "Response Surface Mapping of Neurobehavioral Performance: Testing the Feasibility of Split Sleep Schedules for Space Operations," *Acta Astronaut*, Vol. 63, No. 7-10, 2008, pp. 833-840. FMCSA-2004-19608-4017.



could favor enhanced penalties. Furthermore, section 521(b)(2)(D) allows FMCSA to take into account “such other matters as \* \* \* public safety may require.” The mandate to consider “public safety,” combined with the injunction of section 222 to impose civil penalties “calculated to ensure *prompt* and sustained compliance,” clearly authorizes FMCSA to balance mitigating factors against aggravating factors and to impose the maximum penalty for a first offense that has significant potential to cause serious injury or death, such as excessively long driving hours. FMCSA has no desire to impose such a penalty; on the contrary, the Agency’s hope is that the deterrent effect will make such action unnecessary. But this is a penalty the Agency believes it should have at the ready to deal with truly extreme violations.

FMCSA is not proposing to make the imposition of maximum penalties automatic because it recognizes that a driver may be considered to have exceeded the limit to this degree in different circumstances. For example, one driver may have driven 14 hours between 8 a.m. and 10 p.m.; a second driver may have driven 10 hours, taken a 9-hour off-duty period, then driven another 4 hours. Both of these drivers have technically driven more than the proposed rule would allow (either 3 hours more than an 11-hour driving-time limit or 4 hours more than a 10-hour limit), but only the first might be considered an egregious violation. FMCSA requests comments on whether 3 hours is the appropriate period to trigger the consideration of egregious violation penalties. FMCSA is also seeking comment on whether it should apply a similar concept to other provisions (duty time, driving window, weekly limits, restart) and if so, what those periods should be.

*Section 395.1(o).* FMCSA proposes removing paragraph (o), which allows property-carrying CMV drivers who return to their work-reporting locations daily to extend the duty day to 16 hours once a week. FMCSA believes that anyone driving a CMV large enough to require a commercial driver’s license (CDL) (the drivers affected by paragraph (o)) at the 16th hour should not be doing so without taking at least 3 hours off duty during that shift. FMCSA thinks the proposed rule, which would allow drivers to extend the driving window to 16 hours without extending duty time twice a week, is preferable for reasons of safety. Furthermore, retaining § 395.1(o) while introducing two 16-hour driving windows with 13-hour on-duty periods would add considerable confusion to the rule with no

corresponding advantage and indeed a possible detriment to safety.

*Section 395.1(e)(2).* Today’s proposal for a 13-hour work limit within a general 14-hour driving window, and an optional 16-hour window twice a week, is similar in some respects to the current provision for short-haul operations with vehicles that do not require a CDL (§ 395.1(e)(2)). The rule for drivers of non-CDL vehicles includes certain exceptions and restrictions (an exemption from the logging requirement coupled with a 150 air-mile operating radius and an obligation to return to the work reporting location every day); however, like the proposed rule for larger vehicles, § 395.1(e)(2) allows a 14-hour driving window 5 days a week and a 16-hour window 2 days a week. In order to simplify the HOS regulations, FMCSA is considering rescinding paragraph (e)(2) and requiring the drivers who now use it to comply with the standard HOS limits. Although we have not formally included such a proposal in this NPRM, the Agency seeks comments on the effect of eliminating paragraph (e)(2). Our preliminary analysis suggests that removing paragraph (e)(2) would offer drivers advantages (e.g., greater geographical range and freedom from the need to return to their point of departure every day) that might compensate for the more restrictive 13-hour work limit and the loss of the logbook exemption. FMCSA has little hard information about operations currently conducted under paragraph (e)(2); we invite drivers and carriers that utilize this provision to explain how a decision to remove it would affect them.

Paragraph (e)(1) of § 395.1, like paragraph (e)(2), also exempts drivers from keeping logs, but limits them to a 100 air-mile operating radius and requires them to return to their work reporting location and go off duty within 12 hours of coming on duty; unlike paragraph (e)(2), it is available to drivers of all vehicles, even those large enough to require a CDL. To what extent could carriers and drivers use this provision to compensate for a possible elimination of § 395.1(e)(2)?

In conjunction with a potential rescission of § 395.1(e)(2), the Agency is also considering an expansion of the 100 air-mile radius in § 395.1(e)(1) to 150 miles while leaving the rest of that paragraph unchanged. Please comment on the combined effects on carrier operations of those two possible amendments.

*Compliance dates.* When FMCSA adopted the 2003 HOS rule, it set a compliance date about 8 months after the date of publication. Before that time,

drivers had to operate under the old rules. For enforcement reasons, it is necessary to set a specific date for compliance. FMCSA requests comments on the appropriate period between the effective date and compliance date of the rule. It should be long enough to allow training of drivers and inspectors and reprogramming of electronic log software.

*Twenty-four hour clock.* Safety advocacy groups have asked FMCSA to re-impose the “24-hour clock” that existed under the pre-1962 rules. They argue that working on a 24-hour schedule would allow drivers to establish a regular sleep pattern, which would increase the chances that the drivers could obtain more sleep. In practice, a substantial part of the industry already meets the requirement for a regular schedule. The long-haul TL sector, however, does not. In theory, under the existing rule a long-haul TL driver could drive 11 hours, take 10 hours off duty, then start driving again, moving his or her starting time back 3 hours a day.

FMCSA considered whether it was possible to limit drivers to a 24-hour schedule but was not able to develop a provision that was not operationally disruptive. Although superficially simple—the start time on the first day of a weekly cycle sets the start time for all other days—a 24-hour schedule is too rigid in practice and fails to accommodate the events over which the driver or carrier has no control. A few cities limit the hours when trucks are allowed to load and unload; shippers control loading and unloading time based on their needs, not drivers’ schedules. At the beginning of a work week, drivers may not know where and when their subsequent loads will be. Adding another set of restrictions to their schedules is unnecessarily complex. It could also discourage drivers from taking shorter work days so they will be able to make a delivery appointment early the next day. The alternatives, such as limiting start times within a single trip, which would address the most likely period during which a driver might rotate the clock backward, would be difficult to enforce.

Although FMCSA is concerned about the effect of schedules that rotate backward or forward by several hours over days or the work week, the Agency has no information on the extent to which this is actually occurring. Under the current rule, a driver could theoretically drive 11 hours, then take 10 hours off before driving another 11 hours, but this cannot occur on very many consecutive days. On the first day of any trip, the driver has to spend on-

duty time while the truck is being loaded and on the last day, the driver has to wait while it is unloaded. As discussed in the description of the industry above, according to the 2007 Commodity Flow Survey, only 12 percent of the tons moved in for-hire trucks and less than 1 percent in private carrier trucks traveled more than 500 miles, which represents a 1-day trip. This average is consistent with a trend in the industry to shift to intermodal transport for long hauls, using rail for the long distance segments and trucks for regional operations. Drivers on 1-day trips may not be able to rotate their schedules backward substantially.

*One-size-fits-all approach.* MCSAC and some commenters at the listening sessions recommended that FMCSA consider developing different rules for different sectors of the industry. The Agency recognizes that different parts of the industry have different operational patterns and demands. Drivers and carriers, however, frequently conduct different types of operations in a single week. In 2000, FMCSA proposed to segregate the industry into five broad kinds of operation and to promulgate different rules for each. Most commenters thought the result was far too complex while others complained about the absence of a special provision for their particular operational niche. There was no consensus except that the proposal was unworkable. FMCSA continues to believe that creating separate requirements for the various sectors would make the rule extremely difficult to understand, implement, and enforce.

FMCSA notes that there are special provisions (some regulatory, some statutory) for farmers, driver salesmen, drivers in the construction industry, utility service vehicles, motor coaches, oilfield operations, adverse driving conditions, Alaska, and Hawaii. The HOS rules do not apply when truckers are providing emergency relief in the wake of a State or Federal declaration of an emergency. Furthermore, drivers and carriers have significant flexibility in complying with the rules. Neither FMCSA nor its predecessor agencies have ever had a genuine “one-size-fits-all” approach, but a safety agency cannot have separate standards for each and every element of the staggeringly diverse motor carrier industry.

## VII. Section-by-Section Analysis

In part 385, Appendices B (explanation of the safety rating process) and C (regulations pertaining to remedial directives in Part 385, subpart J) would be revised to update references to part 395 and to remove references to

§ 395.1(o), which would be deleted. Revised references would be added for paragraphs in § 395.3. References to § 395.3(c)(1) and (2) would be deleted because a violation of the minimum restart period would constitute, and be cited as, a violation of the 60- or 70-hour rule. Providing separate violations for elements of the proposed rule would allow FMCSA to determine what parts of the rule had been violated. Under the current method of citing violations, a driver who drives for 18 hours straight cannot be distinguished from the driver who drives 11 hours, takes a 9.5 hour break, then drives another 7 hours. Both are cited for violating the 11-hour rule.

In part 386, Appendix B, paragraph (a) (penalty schedules; violations and maximum civil penalties) would be revised to add a new paragraph (6) to state that any violation of the driving-time limit that was 3 or more hours above the 10- or 11-hour limit could be considered an egregious violation that could trigger imposition of the maximum penalty.

Section 390.23(c)(2) (relief from regulations) would be revised to make the 34-hour restart provision consistent with the revised requirements in part 395.

In § 395.1, paragraph (b) (adverse driving conditions), would be revised to update (1)(i) to change 13 hours to 12 hours if a 10-hour driving-limit is adopted (2 hours more than the driving limit). If an 11-hour driving-time limit is adopted, no change would be needed. Paragraph (b)(1)(ii) would be revised to reference both the 14-hour and the 16-hour driving window.

In § 395.1, paragraph (d)(2) (oilfield operations) would be revised to clarify the language on waiting time and to state that waiting time would not be included in the calculation of the driving window.

In § 395.1, paragraph (e) (short-haul operations), paragraphs (1)(iv)(A) and (2)(v) would be revised to change the driving hours allowed to 10 hours; if an 11-hour driving-time limit is adopted, no change would be needed. The introduction to paragraph (e)(2) would be revised to eliminate the reference to paragraph (o). Paragraph (e)(2)(viii) would be revised to include the provision that the restart must include two night-time periods and is subject to the 168-hour limit.

Section 395.1(g) (sleeper berths) would be revised to change the driving time (if a 10-hour limit is adopted); it would be revised to change the duty-time and driving-window numbers and to add the provision (to paragraph (g)(1)(ii)(C)) that a team driver may log as off duty up to 2 hours in the

passenger seat of a moving vehicle immediately before or after an 8- to 10-hour period in the sleeper berth.

Section 395.1(o) and (q) would be removed. Paragraph (q), a statutory exemption for certain transporters of grapes, expired on September 30, 2009. *See* Sec. 4146 of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users, Public Law 109–59, 119 Stat. 1144, 1749, August 10, 2005.

In § 395.2, the definition of “on-duty time” would be revised to allow a team driver to log as off duty up to 2 hours spent in the passenger seat either immediately before or after the 8-hour period in the sleeper berth. In addition, FMCSA is proposing to exclude from the definition of “on duty,” time spent resting in or on a parked CMV. In the past, drivers have noted that the current definition makes it difficult for drivers of truck tractors without sleeper berths (known as day cabs) to rest because they were considered to be on duty if they were in a parked truck. In many cases, the safest, most comfortable, and often the only place for such a driver to rest during a duty tour will be in the parked truck.

Section 395.3 would be revised to place the individual requirements in separate paragraphs so that FMCSA would be able to cite drivers for violations of specific elements. Under the current rule, drivers are cited only for violations of driving time, on-duty time, and the weekly limits. The proposed rule would make it possible to cite drivers for violations of the daily off-duty break, the use of the 16-hour extension, the 34-hour restart, the 2-night provision, and the 168-hour provision as well as driving time, weekly hours, and on-duty time. This approach would provide useful information about the types of violations being committed.

## VIII. Required Analyses

### A. Executive Order 12866

Under Executive Order (E.O.) 12866 (58 FR 51735, October 4, 1993), FMCSA must determine whether a regulatory action is “significant” and, therefore, subject to Office of Management and Budget review and the requirements of the E.O. The E.O. defines “significant regulatory action” as one that is likely to result in a rule that may:

(1) Have an annual effect on the economy of \$100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or

State, local, or Tribal governments or communities.

(2) Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency.

(3) Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof.

(4) Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the E.O.

Under the E.O., agencies must estimate the costs and benefits of potential rules; for rules that may be considered economically significant (\$100 million or more in costs and benefits), agencies must also evaluate options.

For this analysis, FMCSA considered and assessed the consequences of four potential regulatory options. (A copy of the complete RIA is available in the docket.) Option 1 is the no-action alternative, which would leave the existing 2008 rule in place. Options 2, 3, and 4 each would adopt several revisions to the rule. The RIA addresses each option separately. Option 2 proposes a 10-hour driving-time limit; it would also require the driver to take a rest break during the day; impose a daily duty limit; and reduce the weekly maximum driving and on-duty time theoretically achievable. Option 2 would give drivers the flexibility to work intensely for a single week, after taking two full days off; for example, daytime drivers could work up to 13 hours per day for 5 days in a row (a cumulative 65 hours), take 34 hours off to restart the 70-hour clock, and then work another 13-hour day, for a total of 6 13-hour days, which is a cumulative 78 hours on-duty (out of 7 consecutive calendar days). Options 3 and 4 are identical to Option 2 in all respects except for the amount of driving time allowed. Option 3 would allow an 11-hour driving-time limit, while Option 4 would adopt a 9-hour driving-time limit. Although Option 2 is the Agency's

currently preferred option, this summary presents the impacts of Options 2 through 4.

Compliance with HOS rules was assumed to be 100 percent for both the baseline and options; no attempt was made to estimate real-world compliance rates or to adjust costs and benefits for non-compliance. This assumption was made to avoid understating the true costs of the rule. To the extent that compliance rates fall short of 100 percent, both costs and benefits would be lower. This approach allows for analyses of supplementary rules aimed at improving compliance, which would presumably move both costs and benefits closer to the levels estimated in this analysis. These incremental changes in costs and benefits would not duplicate the costs and benefits estimated for this proposal; rather they would indicate the extent to which the supplementary rules ensured that the proposal's costs and benefits were realized.

To calculate the impacts of the proposed changes to the HOS rule, it is necessary to develop a profile of the motor carrier industry and estimate the degree to which drivers in various segments work up to or close to the limits of the current rule. Drivers whose preferences or work demands would lead them to choose schedules well within the current limits for reasons unrelated to those limits will not be affected by the rule changes.

The analysis concentrated on inter-city long-haul or regional, as opposed to local, trucking operations. In general, short-haul trucking work has far more in common with other occupations than it does with regional or long-haul trucking. These local, short-haul trucking operations are generally 5-day-a-week jobs, and much of the time on duty is given to tasks other than driving. Typical work days are 8 to 10 hours or so and typical weeks are 40 to 55 hours. Many, if not most, of these drivers receive overtime pay past 8 hours in a day. Most of the work is regular in

character; drivers go to basically the same places and do the same things every day. The rule changes proposed in this NPRM are expected to have little effect on such operations.

Both for simplicity of presentation and because of the nature of the available data, the analysis used 100 miles as the point of demarcation between local and over-the-road (OTR) service. Much of the information on working and driving hours is drawn from FMCSA's 2007 Field Survey.<sup>47</sup> Companies and drivers were identified as operating within or beyond a 100-mile radius. The Economic Census,<sup>48</sup> which provided data on revenue, defines a long-distance firm as one carrying goods between metropolitan areas; this is roughly compatible with a 100-mile radius for the distinction between local and OTR service. One hundred miles is also compatible with the length-of-haul classes in the Commodity Flow Survey.

To analyze the impact of the proposed rule changes, the analysis needed to define the prevailing operating patterns in the industry. Of particular interest is the extent to which drivers work close to the limits set by the current rule. To analyze current patterns in work intensity, drivers were assigned to four intensity groups, based on their average weekly hours of work. For this purpose, the analysis used data on weekly work hours from the 2007 Field Survey to define intensity groups as shown in Table 4.

Moderate-intensity drivers are on duty an average of 45 hours per week. High-intensity drivers are on duty an average of 60 hours per week. The third group, very-high-intensity drivers, works an average of 70 hours per week. The fourth group, extreme-intensity drivers, is on duty an average of 80 hours per week. The 2007 Field Survey indicated a distribution of the driver population across these groups as shown below.

TABLE 4—DRIVER GROUPS BY INTENSITY OF SCHEDULE

Work intensity group	Average weekly work time	Percent of workforce	Weighted average hours per week
Moderate .....	45	66%	29.70
High .....	60	19%	11.40
Very High .....	70	10%	7.00
Extreme .....	80	5%	4.00
Total .....			52.10

<sup>47</sup> The "2007 Field Survey" is an alternate title for the FMCSA, "2007 Hours of Service Study," 2007. FMCSA-2004-19608-2538.

<sup>48</sup> U.S. Census Bureau, "2007 NAICS [North American Industry Classification System]

Definitions 484 Truck Transportation," 2008. FMCSA-2004-19608-4066.

The weighted average is obtained by multiplying the average work time in each class by the fraction of the workforce in that class. The sum, just over 52 hours, is average hours of work per week based on each group's share of the total population. Data analyzed in 2005 from the 2004 Field Survey and a large truck-load carrier suggested a slightly higher industry-wide average work week of 53 hours, which is the value used in the cost-benefit analysis.<sup>49</sup> The analysis made similar calculations using the Field Survey data to determine the weighted averages for use of the 10th and 11th hour of drive time and the 14th hour of daily on-duty time. These figures can be found in the accompanying RIA.

The basic approach for calculating impact on the industry is to follow the chain of consequences from changes in HOS provisions to the way they would affect existing work patterns in terms of work and driving hours per week, taking into account overlapping impacts of the rules. The resulting predicted changes in work and driving hours are then translated into changes in productivity by comparing them to average hours. The changes in productivity, in turn, are translated into changes in costs measured in dollars. The total combined effect would be to decrease industry productivity by approximately 2 percent for Option 2, 1 percent for Option 3 and 6 percent for Option 4. These decreases in industry productivity result in total annual cost of \$990 million for Option 2, \$480 million for Option 3 and \$2,270 million for Option 4. In addition, the cost of re-training drivers, carriers, and enforcement personnel, as well as re-programming electronic logbook and other carrier driver-management software would result in approximately \$320 million in costs in the first year for Options 2 through 4. The training and re-programming costs have been annualized because they would not recur; over the first 10 years at a 7 percent discount rate, they would amount to about \$40 million per year. The total annualized costs of the changes in operating, training, and re-programming would therefore be approximately \$1.030 billion for Option 2, \$520 million for Option 3, and \$2.310 billion for Option 4.

#### Rule Benefits

The primary goal of the proposed changes is to improve highway safety by reducing driver fatigue and the

associated increase in the probability that fatigued drivers will be involved in crashes. A secondary benefit expected from this rule is a decrease in driver mortality due to health problems caused by long working hours and the association of long working hours with inadequate sleep.

To analyze the safety impacts of these changes, the Agency has developed a series of functions that incorporate fatigue-coded to hours of daily driving and hours of weekly work. In past HOS regulatory analyses, the effects on fatigue and fatigue-related crashes of changing the HOS rules were calculated using fatigue models. These models (the Walter Reed Sleep Performance Model for the 2003 rules, and the closely related SAFTE/FAST Model for later analyses) took into account the drivers' recent sleeping and waking histories, and calculated fatigue based on circadian effects as well as acute and cumulative sleep deprivation. These models did not incorporate functions that independently accounted for hours of driving after an extended rest (*i.e.*, acute time-on-task) or cumulative hours of work (as opposed to off-duty time) over recent days. These effects were assumed, instead, to be accounted for in the effects of long daily and weekly work hours on the drivers' ability to sleep. For the 2005 and later analyses, a separate time-on-task function based on statistical analysis of TIFA data was added to ensure that available evidence for time-on-task effects was not ignored; those analyses were still criticized as deficient for excluding consideration of cumulative time-on-task effects.

For the current analyses, FMCSA is replacing the use of the sleep-related fatigue models with a simpler approach that explicitly relates the risk of a fatigue-coded crash to hours of daily driving and hours of weekly work. The function used to model the effects of daily driving hours is the same as the TIFA-based logistic function used since 2005, while the function for modeling weekly work hours is taken from FMCSA's analysis of the LTCCS. Other fatigue effects, including the effects of insufficient sleep and circadian effects of working and sleeping at sub-optimal times, are implicitly assumed to be incorporated in the daily driving and weekly work hour functions because those effects were at work on the drivers involved in the crashes recorded in TIFA and LTCCS. To add fatigue effects calculated by a sleep/performance model on top of the empirically based functions would, therefore, run the risk of double counting the benefits of restrictions on work and driving. These functions, and the uncertainty

surrounding them, are described in detail in the RIA.

The basic approach for using the empirically based fatigue risk functions was to count the changes in hours worked and driven as a result of the regulatory options. Each hour of driving that is avoided results in a reduction in expected fatigue-related crashes. These reductions were calculated using the predicted levels of fatigue-related crashes indicated by the fatigue functions. The hours of driving and working that are prevented by the options, though, were assumed to be shifted to other drivers or to other work days rather than being eliminated altogether. The fatigue crash risks for those other drivers and other days were also calculated. Taking account of these partially offsetting risks means that the predicted crash reductions attributable to the options were really the net effect of reducing risks at the extremes of driving and working while increasing risks for other drivers and on other days.

The changes in crash risks were monetized (*i.e.*, translated into dollars) using a comprehensive and detailed measure of the average damages from large truck crashes. This measure takes into account the losses of life (based on the DOT's accepted value of a "statistical life," recently set at \$6 million); medical costs for injuries of various levels of severity, pain, and suffering; lost time due to the congestion effects of crashes; and property damage caused by the crashes themselves.<sup>50</sup>

Based on these functions, we have estimated that the safety benefits of this rule would be substantial. The mid-point estimate of the annual crash reduction benefits associated with these changes is based on the assumption that fatigue is involved in roughly 13 percent of large truck crashes, based on the LTCCS; this yielded a monetized safety benefit of approximately \$720 million per year for Option 2, \$430 million for Option 3, and \$1.220 billion for Option 4. The analysis included a series of sensitivity analyses surrounding these estimates because the level of fatigue involvement in truck crashes is uncertain. For each of the options, the sensitivity analysis produced a range of benefits per year under the assumption that fatigue is involved in approximately 7 percent of crashes and under the assumption of a higher 18

<sup>49</sup> These data are shown in Exhibit 2-6 in the 2008 RIA [docket item number FMCSA-2004-19608-3510.1]. Details are in the 2010 RIA, Appendix A, "Data and Calculations for Industry Profile."

<sup>50</sup> Average large truck crash costs were obtained from the report, "Unit Costs of Medium/Heavy Truck Crashes," March 13, 2007, by E. Zaloshnja and T. Miller. The cost of a crash was updated to 2008 dollars and to reflect a value of a statistical life of \$6 million. The report is in docket #FMCSA-2004-19608-3995.

percent fatigue involvement. The estimated safety benefits ranged from \$390 million to \$1.000 billion for Option 2, from \$230 million to \$590 million for Option 3, and from \$660 million to \$1.690 billion for Option 4.

The analysis also calculated benefits associated with improvements in driver health. The Agency has a statutory mandate to ensure that driving conditions do not impair driver health. Research indicates that reducing total daily and weekly work for the drivers working high-intensity schedules should result in these drivers getting more sleep on a daily and weekly basis. Recent research on sleep indicates that inadequate sleep is associated with increases in mortality. This effect appears to involve several complex pathways, including an increase in the propensity for workplace (and leisure time) accidents and mortality due to decrements in several health-related measures, such as an increase in the incidence of high blood pressure, obesity, diabetes, cardiovascular disease (CVD), and other health problems. The analysis attempted to model the workplace accident effect explicitly in the crash reduction benefits. However, explicit modeling of all the other various ways that insufficient sleep increases mortality becomes too complex and uncertain for this analysis. The studies the analysis relied on to model health benefits, therefore, are population-based studies that look at overall mortality, independent of the cause of death, as a function of sleep. Because increases in hours worked are associated with decreases in hours spent sleeping, and truck drivers working high-intensity schedules get

significantly less than the 7 or more hours of sleep required for optimal mortality, cutting back on extreme work should, to some extent, reduce mortality among these drivers.

These benefit estimates depend on how much sleep CMV drivers currently get and how much more sleep they are expected to get under the proposed rule. The analysis developed a function that relates hours worked to hours slept and used this function to predict how much more sleep drivers would get under the proposed rule than they currently obtain under the existing rule. The results of this analysis are sensitive to the amount of sleep drivers are currently getting; increases in sleep have less substantial health benefits if individuals are already getting close to the optimal 7–8 hours per night than if they average less sleep. Since there is a degree of uncertainty surrounding how much sleep drivers currently get, a sensitivity analysis varied the baseline amount of sleep drivers are currently obtaining. This analysis showed that health improvement benefits are greatest when drivers are getting the least sleep under the current rule, because they have the most room for improvement.

The sensitivity analysis scenarios are divided into the low sleep, medium sleep, and high sleep categories. Under the low sleep scenario, the benefits are greatest because it is the most pessimistic regarding how much sleep drivers currently obtain. The high sleep scenario assumed that drivers are getting close to the optimal amount; as a result, there is little if any benefit to giving them opportunity for more sleep. For the low sleep scenario, driver health improvement benefits are estimated to be \$1.480 billion per year for Option 2,

\$1.190 billion for Option 3, and \$1.990 billion for Option 4. Under the medium sleep scenario, these benefits fall to \$690 million per year for Option 2, \$650 million for Option 3, and \$660 million for Option 4. For the assumption of a high level of baseline sleep for Options 2 and 4, it is interesting to note that the benefits are negative, indicating that it is not beneficial for individuals to get additional sleep if they are already getting adequate sleep. As discussed in the RIA, we do not believe that the negative benefits for drivers with a high baseline level of sleep would be realized, but we include them to keep the analysis consistent with our other scenarios.

Tables 5 through 7 below present the total annual benefits of Options 2 through 4 for all three fatigue involvement and sleep scenarios described above. As this analysis indicates, Option 2 could generate anywhere from \$280 million to \$2.480 billion in annual benefits; Option 3 could generate between \$330 million and \$1.790 billion in annual benefits; and Option 4 could generate between negative \$10 million and \$3.680 billion in annual benefits. These estimates include both health and safety benefits. The mid-point estimate for Options 2 and 3 would result in a cost beneficial rule. For Option 2, the mid-point estimate is \$1.410 billion in benefits, with associated costs of \$1.030 billion; and for Option 3, the mid-point estimate is \$1.080 billion in benefits, with associated costs of \$520 million. For Option 4, the mid-point estimate is not cost beneficial, with benefits of \$1.880 billion and associated costs of \$2.310 billion.

TABLE 5—ESTIMATED BENEFITS BY AMOUNT OF SLEEP AND CRASH RATE FOR OPTION 2 (10 HOURS DRIVING)  
[Millions per year]

Assumed percent of crashes due to fatigue	Assumed amount of nightly sleep		
	Low sleep	Medium sleep	High sleep
7 percent .....	\$1,870	\$1,080	\$280
13 percent .....	2,210	1,410	620
18 percent .....	2,480	1,690	890

TABLE 6—ESTIMATED BENEFITS BY AMOUNT OF SLEEP AND CRASH RATE FOR OPTION 3 (11 HOURS DRIVING)  
[Millions per year]

Assumed percent of crashes due to fatigue	Assumed amount of nightly sleep		
	Low sleep	Medium sleep	High sleep
7 percent .....	\$1,420	\$880	\$330
13 percent .....	1,620	1,080	530
18 percent .....	1,790	1,240	700

TABLE 7—ESTIMATED BENEFITS BY AMOUNT OF SLEEP AND CRASH RATE FOR OPTION 4 (9 HOURS DRIVING)  
[Millions per year]

Assumed percent of crashes due to fatigue	Assumed amount of nightly sleep		
	Low sleep	Medium sleep	High sleep
7 percent .....	\$2,650	\$1,320	-\$10
13 percent .....	3,210	1,880	560
18 percent .....	3,680	2,350	1,030

Table 8 below presents the net benefits of Options 2 through 4 for all three baseline sleep scenarios. These figures use the 13 percent fatigue-involvement scenario described above. Option 3 has the highest net benefits for the medium and high sleep scenarios, while Option 2 has slightly higher net benefits in the low sleep scenario. The higher net benefits of Option 3 are due to the allowance of 11 hours of driving per day, which reduces productivity losses to the industry. Option 2 results in greater safety benefits than Option 3; and for high-benefit scenarios, the

monetary value of those safety improvements outweighs their economic impact. Furthermore, this option appears likely to be cost beneficial under all but the most optimistic assumptions about how much sleep drivers get under the current rule. Under Option 4, the economic costs to industry are likely to outweigh the combined benefits of crash reductions and improvements in driver health. The high negative value for Option 4 for high baseline sleep is the result of the U-shaped relationship between average sleep per night and

mortality rates mentioned above. Although the analysis shows a negative health benefit for drivers with medium and high baseline levels of sleep, FMCSA does not believe that these negative benefits would be realized because drivers might choose other activities rather than sleeping if they are getting enough sleep already. The negative benefits are included in the analysis to be consistent with assumptions regarding the other scenarios.

TABLE 8—NET BENEFITS BY OPTION  
[Millions per year]

Net benefit scenario	Option 2 10 hours of driving allowed	Option 3 11 hours of driving allowed	Option 4 9 hours of driving allowed
Low Baseline Sleep .....	\$1,170	\$1,100	\$900
Medium Baseline Sleep .....	380	560	- 420
High Baseline Sleep .....	- 410	10	- 1,750

In addition to the quantified and monetized benefits discussed above, there may be other health benefits that shorter work days and weeks could produce. Research indicates that the metabolic and endocrine disruptions associated with short sleep time and long work hours are significantly related to obesity.<sup>51</sup> Obesity is in turn associated with higher incidences of diabetes, CVDs, hypertension, and obstructive sleep apnea.<sup>52</sup> These

medical conditions impose costs on drivers who suffer from them and affect the quality of their lives. Sedentary work alone is also associated with obesity and mortality impacts.<sup>53</sup>

Research on the health and health costs found that CMV drivers are both heavier for their height and less healthy than adult males as a whole. As discussed in Section V. of this NPRM, drivers are far more likely than adult male workers as a whole to be obese.

Table 9 presents the distribution of drivers by weight category and the incidence of health conditions for drivers in each weight group, taken from a study that used medical examination records and health insurance claims of 2,950 LTL drivers.<sup>54</sup> (The national statistics for the incidence of health conditions among adult males include men over 70, who may have higher incidences of some conditions than the younger working population.)

TABLE 9—DRIVER HEALTH CONDITIONS BY WEIGHT CATEGORY

N=2,950	Percent drivers in weight category	Presence of at least one health risk factor (percent)	Hypertension (percent)	Diabetes (percent)	High cholesterol (percent)
Normal weight .....	13	26 .....	21 .....	5 .....	11
Overweight .....	30	39 .....	31 .....	10 .....	17

<sup>51</sup> Van Cauter, E. & Knutson, K., "Sleep and the Epidemic of Obesity in Children and Adults," *European Journal of Endocrinology*, Vol. 159, 2008, pp. S59-66. FMCSA-2004-19608-3991.

Di Milia, L. & Mummary, K. (2009).  
<sup>52</sup> Mokdad, A.H., Ford, E.S., Bowman, B.A., Dietz, W.H., Vinicor, F., Bales, V.S. & Marks, J.S.,

"Prevalence of Obesity, Diabetes, and Obesity-Related Health Risk Factors, 2001," *Journal of the American Medical Association*, Vol. 289, No. 1, 2003, pp. 76-79. FMCSA-2004-19608-4016.

<sup>53</sup> Katzmarzyk, P.T., Church, T.S., Craig, C.L. & Bouchard, C., "Sitting Time and Mortality from All Causes, Cardiovascular Disease, and Cancer,"

*Medicine and Science in Sports and Exercise*, Vol. 41, No. 5, May 2009, pp. 998-1005. FMCSA-2004-19608-4001.

<sup>54</sup> Martin, B.C., et al. (2009).

TABLE 9—DRIVER HEALTH CONDITIONS BY WEIGHT CATEGORY—Continued

N=2,950	Percent drivers in weight category	Presence of at least one health risk factor (percent)	Hypertension (percent)	Diabetes (percent)	High cholesterol (percent)
Obese .....	55	59 .....	51 .....	21 .....	26
Overall .....		48 .....	41 .....	16 .....	21
National adult male (CDC statistics) ...			31.80 .....	10.9 (7.4% diagnosed) .....	15.60

FMCSA has not attempted to quantify the benefits of improved health that may accrue to drivers who have more time off. First, the Agency does not have dose-response curves that it can use to associate sleep time with mitigation or exacerbation of the various health impacts other than sleep loss itself. Second, the Agency has no basis for estimating the extent to which drivers who have an extra hour a day or extra hours per week off duty will use that time to exercise and sleep. Third, many of the health impacts are linked to obesity; given the difficulty most people have in losing weight, it would be unjustifiably optimistic to attempt to estimate the degree of potential weight loss.

The health consequences of long hours, inadequate sleep, and long stretches of sedentary work are, however, significant: They cause serious health conditions that may shorten a driver's life and increase healthcare costs. In addition, some studies have linked obesity to increased crash risks, including a recent analysis of the VTTI data, which found that obese CMV drivers were between 1.22 and 1.69 times as likely to drive while fatigued, 1.37 times more likely to be involved in a safety-critical event, and at 1.99 times greater risk of being above the fatigue threshold as measured by eye closure when driving.<sup>55</sup>

#### Conclusion

In conclusion, the RIA shows an annualized cost of about \$1 billion for Option 2, about \$500 million for Option 3, and over \$2 billion for Option 4. Annual safety and health benefit estimates range from below \$300 million to more than \$2.4 billion in quantifiable benefits for Option 2, from \$300 million to more than \$1.7 billion for Option 3, and from negative \$10 million to more than \$3.6 billion for Option 4. Net quantifiable benefits, as a result, are likely to be positive, but

could, under the 13 percent baseline fatigue involvement scenario, range from a negative \$410 million per year to more than a positive \$1.1 billion per year for Option 2, from a negative \$10 million to a positive \$1.1 billion for Option 3, and from more than a negative \$1.8 billion to more than a positive \$900 million for Option 4.

The wide range in estimated quantifiable benefits and net quantifiable benefits is a consequence of the difficulty of measuring fatigue and fatigue reductions, which are complex and often subjective concepts, in an industry with many different participants and diverse operational patterns. Uncertainty in the value of avoided deaths and greater expected lifespans create yet more uncertainty, the quantified benefits would be higher for higher values of "statistical lives." Still, it seems clear that the quantifiable benefits could easily be quite substantial, and could easily exceed the costs.

The costs, for their part, are large in absolute terms but minor when compared to the size of the industry: \$1 billion per year (the total annualized cost for Option 2) is only half of 1 percent of revenues, \$500 million per year (the total annualized cost for Option 3) is only one quarter of 1 percent of revenues, and \$2 billion per year (the total annualized cost for Option 4) is only 1 percent of revenues in the for-hire long-haul segment of the industry. These total annual costs are an even smaller fraction of revenues of the long-haul segment as a whole. As an additional example, the costs of Option 2 are equivalent to less than a \$0.02 per gallon increase in industry fuel costs, which is a minimal increase in an industry used to wide swings in fuel costs. Between 2006 and 2010, diesel fuel prices ranged from \$2.09 a gallon to \$4.70 a gallon.<sup>56</sup>

Compared to the other two options that were analyzed, Option 2 would have roughly twice the costs of Option 3 (which allows 11 hours of daily driving), and less than half the cost of

Option 4 (which allows 9 hours). In keeping with their relative stringencies, Option 3 has lower and Option 4 has higher projected benefits than Option 2. Option 4's substantially larger costs do not appear to be justified by its generally higher range of benefits. While both Option 2 and Option 3 are generally cost-effective, Option 3's calculated net benefits appear likely to be somewhat higher than the net benefits of Option 2 under most assumptions about baseline conditions.

The Agency's goal of improving highway safety and protecting driver health, combined with the potentially significant but unquantifiable health benefits of reductions in maximum working and driving hours, make Option 2 a reasonable choice. Nonetheless, because of the costs of Option 2, the Agency requests additional data before making its final decision.

The Agency requests commenters to submit, to the extent possible, statistically reliable information on the costs and benefits of Options 2 and 3, especially with regard to a 10- and 11-hour driving limit, but also on other aspects of this NPRM of interest to the public. When submitting analyses of data, it is important to provide enough information on how the data were collected and enough actual data to allow FMCSA to determine if the conclusions drawn are justified by the underlying data.

#### B. Regulatory Flexibility Act

The Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*) requires Federal Agencies to determine whether proposed rules could have a significant economic impact on a substantial number of small entities. FMCSA conducted an Initial Regulatory Flexibility Analysis (IRFA) to analyze the impact of the proposed changes to the HOS regulations on small entities. After a description of why action is being taken by the Agency, this IRFA discusses the possible number of affected small entities. FMCSA estimates the impact of the new HOS rule provisions on small carriers in the first year in which the rule would be in

<sup>55</sup> Wiegand, D.M., Hanowski, R.J. & McDonald, S.E., "Commercial Drivers' Health: A Naturalistic Study of Body Mass Index, Fatigue, and Involvement in Safety-Critical Events," *Traffic Injury Prevention*, Vol. 10, No. 6, December 2009, pp. 573-579. FMCSA-2004-19608-3994.

<sup>56</sup> <http://tonto.eia.doe.gov/oog/info/gdu/gasdiesel.asp>, accessed May 11, 2010.



effect for Options 2 and 3. We then estimate the annual burden on small entities over the first 10 years of the rule being in effect. Lastly, we discuss the reporting, recordkeeping, and other compliance requirements of the proposed rule, discuss whether any other Federal regulations overlap with the proposed rule, and discuss the consideration of alternatives to minimize the impact of the proposed rule on small entities.

### 1. A Description of the Reasons Why Action by the Agency is Being Considered

The goals of the proposed changes to the HOS rule are to improve safety while ensuring that the requirements would not have an adverse impact on driver health. The proposed rule would also provide drivers with the flexibility to obtain rest when they need it and to adjust their schedules to account for unanticipated delays. The impact of HOS rules on CMV safety is difficult to separate from the many other factors that affect heavy-vehicle crashes. While the Agency believes that the data show no decline in highway safety since the implementation of the 2003 HOS rule and its re-adoption in the 2005 HOS rule, the 2007 IFR, and the 2008 HOS rule (73 FR 69567, 69572, Nov. 19, 2008), the total number of crashes, though declining, is still unacceptably high. Moreover, the source of the decline in crashes is unclear. FMCSA believes that, with the 10-hour option, the modified HOS rules proposed in this NPRM, coupled with FMCSA's many other safety initiatives and assisted by the actions of an increasingly safety-

conscious motor carrier industry, would result in continued reductions in fatigue-related CMV crashes and fatalities. Furthermore, with the 10 hour option, the proposed rule is intended to protect drivers from the serious health problems associated with excessively long work hours, without significantly compromising their ability to do their jobs and earn a living.

### 2. A Succinct Statement of the Objectives of, and Legal Basis for, the Proposed Rule

The objectives of the proposed rule are to reduce large-truck involved crashes—especially those where fatigue is a causative factor—and protect drivers against the adverse health impacts of working excessively long hours. This proposed rule is based on the authority of the Motor Carrier Act of 1935 and the Motor Carrier Safety Act of 1984. See the Legal Basis section earlier in this document for a discussion of these two Acts. Before prescribing any regulations, FMCSA must also consider their “costs and benefits” (49 U.S.C. 31136(c)(2)(A) and 31502(d)). Those factors are also discussed in this proposed rule.

### 3. A Description of and, Where Feasible, an Estimate of the Number of Affected Small Entities to Which the Proposed Rule Will Apply

The HOS regulations apply to both large and small motor carriers. The Small Business Administration defines a small entity in the truck transportation sub-sector (North American Industry Classification System [NAICS] 484) as an entity with annual revenue of less than \$25.5 million [13 CFR 121.201].

Using data from the 2007 Economic Census, FMCSA estimated that the average carrier earns almost \$200,000 in annual revenue per truck for firms with multiple power units,<sup>57</sup> suggesting that a typical carrier that qualifies as a small business would have fewer than 128 (\$25.5 million/\$200,000) power units (*i.e.*, trucks or tractors) in its fleet. Also using data from the 2007 Economic Census, FMCSA estimated that sole proprietorships earned approximately \$85,000 in annual revenue.<sup>58</sup>

To determine the number of affected small entities, we used the analysis conducted by FMCSA for the Unified Carrier Registration (UCR) rule.<sup>59</sup> The economic analysis for the UCR rule divided carriers into brackets based on their fleet size (*i.e.*, number of power units), and estimated the number of carriers in each bracket. These brackets and their corresponding numbers of carriers are shown in Table 10. According to these estimates and the above-mentioned characterizations of small entities in the trucking industry, all of the carriers in Brackets 1 through 4 would qualify as small entities, as would many of the carriers in Bracket 5. Therefore, this analysis estimates that between 422,196 (Brackets 1 through 4) and 425,786 (Brackets 1 through 5) small entities would be affected by the HOS rule changes. This range may overstate the number of affected small entities because many private carriers with small fleets may not qualify as small businesses because their primary business is not the movement of freight. These private firms would thus have other sources of revenue and fall under different NAICS codes.

TABLE 10—NUMBER OF CARRIERS BY FLEET SIZE  
[From FMCSA's Analysis of the Unified Carrier Registration Plan Rule]

Bracket	Fleet size	Number of carriers
1 .....	1 .....	194,425
2 .....	2–5 .....	145,266
3 .....	6–20 .....	65,155
4 .....	21–100 .....	17,350
5 .....	101–1,000 .....	3,590
6 .....	1,001–More ..	292
Total .....	.....	433,535

<sup>57</sup> As shown in the “2007 Economic Census,” the entire trucking industry (NAICS code 484) generated revenue of \$228,907 million (in 2006 dollars). FMCSA then used 2007 Economic Census data for NAICS code 484 to derive a total estimate of 1,183,000 trucks in the for-hire sector. FMCSA then divided total revenue by the total number of trucks to obtain an estimate of average revenue of \$193,000 in 2006 dollars, or \$199,967 inflated to

2008 dollars using the Gross Domestic Product (GDP) Deflator (<http://cost.jsc.nasa.gov/inflateGDP.html>). This \$199,967 value was rounded to \$200,000 in the analysis.

<sup>58</sup> There were 499,706 individual proprietorships in the “truck transportation” NAICS code with total revenue of \$41,110 million. Dividing the total revenue by the total number of firms resulted in average revenue per firm of \$82,269 in 2006 dollars,

or \$85,239 when inflated to 2008 dollars using the GDP Deflator (<http://cost.jsc.nasa.gov/inflateGDP.html>). This \$85,239 value was rounded to \$85,000 in the analysis.

<sup>59</sup> FMCSA, “Regulatory Evaluation of the Fees for the Unified Carrier Registration Plan,” February 19, 2010. Available in the docket: FMCSA–2009–0231–0181.

Table 11 below presents figures for private carriers by NAICS code for industries with large numbers of drivers (and hence the likelihood of large numbers of fleets). The table includes the total number of CMV drivers working in each industry, the percentage of payroll those drivers account for, and the payroll of those industries as a percent of total industry revenue. Some of these industries have SBA size thresholds that are considerably lower than the threshold for truck transportation, strongly suggesting that many firms in these

industries that would be considered small using the threshold of 128 power units are actually large. For example, a wholesaler with 128 trucks is certainly a large firm because it will have more than 100 employees. Other industries have thresholds as high as 1,500 full-time equivalent employees (FTEs); a firm in one of these industries might rank as small with even more than 128 power units if the number of power units in its fleet were large compared to the size of its workforce (e.g., if it had 300 power units, and only three employees per power unit, it could be

considered small in an industry with a threshold of 1,500 FTEs). From Table 11, however, this circumstance is not likely to be common: In firms in NAICS 21 and 31–33, which have high FTE thresholds, drivers make up only a very small percentage of the workforce. Thus, firms with a substantial numbers of power units are likely to have much larger labor forces, and are therefore likely to rank as large firms. Given these considerations, we are, if anything, over-counting the number of private carriers that would qualify as small businesses.

TABLE 11—PRIVATE CARRIERS AND DRIVERS BY INDUSTRY

NAICS	Industry	SBA standard	Number of drivers	Drivers as percent of all employees	Payroll as percent of revenues
21	Mining, Quarrying, and Oil and Gas Extraction.	500 FTE	29,900	4.17	10
23	Construction	\$14 million to \$33.5 million	127,200	1.76	19
31–33	Manufacturing	500–1,500 FTE	238,600	1.78	11
42	Wholesale	100 FTE	509,000	8.53	5.5
44–45	Retail	\$7 million to \$29 million	307,900	2.01	10
53	Real Estate and Leasing	\$7 million to \$25 million	40,500	1.9	18
56	Administrative and Support and Waste Management and Remediation Services.	\$7 million to \$35.3 million	132,300	1.64	46
722	Food Services	\$7 million	175,400	1.82	29
81	Other Services	\$7 million	44,000	0.80	24

#### First Year Impacts on Small Entities

Affected small entities would incur several types of costs as a result of the HOS rule provisions. First, as discussed in the HOS RIA, carriers would incur annual costs due to losses in productivity. As discussed in the HOS RIA, these productivity impacts are roughly \$990 million per year for Option 2 and \$480 million per year for Option 3. We divided this total productivity impact by the approximate number of long-haul drivers (1,600,000) to obtain an annual per driver productivity impact of approximately \$620 for Option 2 and \$400 for Option 3. We then converted these per driver impacts to per power unit impacts (shown below in Tables 12 and 13). For sole proprietorships, we assumed for this analysis that these were single power unit firms and there was one driver per tractor. The total annual operational cost for sole proprietorships was thus \$620 ( $\$620 \times 1$ ) for Option 2 and \$300 ( $\$300 \times 1$ ) for Option 3.<sup>60</sup> For

<sup>60</sup> In this analysis, we consider sole proprietorships separately due to the fact that these firms tend to have low revenues and are thus impacted by the proposed rule differently than larger firms. We have assumed that sole proprietorships have one power unit, but their defining characteristic is their average revenues and not the number of power units they have.

firms with multiple power units, this analysis assumes that multiple unit carriers have 1.1 drivers per power unit.<sup>61</sup> The annual per power unit operational cost for firms with multiple power units was thus \$682 ( $\$620 \times 1.1$ ) for Option 2 and \$330 ( $\$300 \times 1.1$ ) for Option 3.

In addition to the productivity impacts, each carrier would incur one-time costs for training in the requirements of the new rule. To estimate the training cost, we used information from Agency personnel who participated in previous HOS retraining efforts to determine that each driver would need to take a one-time 2-hour training course to ensure compliance with the new rule provisions. As described in Chapter 6 of the RIA, we used a loaded average hourly rate of \$23.96 (wages plus fringe benefits) for the industry. The 2-hour training course thus resulted in a cost of approximately \$48 per driver.

Carriers would incur additional one-time costs for software reprogramming and other transition costs. As discussed in the RIA, reprogramming and other transition costs were estimated using information obtained from the HOS

<sup>61</sup> FMCSA, "SAFER Data: Average Drivers per Power Unit for TL Firms," <http://safer.fmcsa.dot.gov/>.

listening sessions conducted in various locations in early 2010. Based on information from these sessions, we assumed that the total one-time training, reprogramming, and other transition costs were about \$200 per driver (including the \$48 training cost discussed above). For sole proprietorships, we again assumed one driver per power unit for a total one-time cost of \$200 per power unit. We view this estimate as conservative due to the fact that many firms will not incur any programming costs. We again assumed that carriers with multiple units have 1.1 drivers per power unit, for a total one-time cost of \$220 per power unit.<sup>62</sup> These one-time costs for sole proprietorships and multiple power unit firms are the same for Options 2 and 3, and are shown below in Table 12.

To estimate the first-year costs per power unit for affected firms, the annual and one-time costs for Option 2 and 3 were summed as shown in Tables 12 and 13. For Option 2, this calculation resulted in a total first-year cost to sole proprietorships of \$820 per power-unit in the first year and a total first-year cost to firms with multiple power units of

<sup>62</sup> FMCSA, "SAFER Data: Average Drivers per Power Unit for TL Firms," <http://safer.fmcsa.dot.gov/>.

\$902 per power unit. For Option 3, this calculation resulted in a total first-year cost to sole proprietorships of \$500 per power unit in the first year and a total first-year cost to firms with multiple power units of \$550 per power unit.

TABLE 12—FIRST-YEAR COSTS TO AFFECTED FIRMS PER POWER UNIT FOR OPTION 2

Type of cost	Cost per power unit (sole proprietorship) <sup>a</sup>	Cost per power unit (multiple power unit firm) <sup>a</sup>
Annual Operating Cost (A) .....	\$620	\$682
One Time Training, Reprogramming, and Other Costs (B) .....	200	220
Total First Year Cost (A + B) .....	820	902

<sup>a</sup> FMCSA analysis.

TABLE 13—FIRST-YEAR COSTS TO AFFECTED FIRMS PER POWER UNIT FOR OPTION 34

Type of cost	Cost per power unit (sole proprietorship) <sup>a</sup>	Cost per power unit (multiple power unit firm) <sup>a</sup>
Annual Operating Cost (A) .....	\$300	\$330
One Time Training, Reprogramming, and Other Costs (B) .....	200	220
Total First Year Cost (A + B) .....	500	550

<sup>a</sup> FMCSA analysis.

Next, we compared the estimated first-year costs to the average revenue for sole proprietorships and multiple power unit firms for Options 2 and 3 (shown in Tables 14 and 15). As noted earlier, average revenues for different sized firms were taken from 2007 Economic Census data.<sup>63</sup> For Option 2, the first year costs of the proposed rule changes would be equal to 0.96 percent of average revenue for sole

proprietorships and 0.45 percent of average revenue for multiple unit carriers. For Option 3, the first year costs of the proposed rule changes would be equal to 0.59 percent of average revenue for sole proprietorships and 0.28 percent of average revenue for multiple unit carriers. Thus, when looking only at first year costs for Options 2 and 3, the new HOS rule is not expected to have a significant

impact on the average sole proprietorship or firm with multiple power units. Because of variability in both the first-year costs and the average revenues to which they are compared, however, the impact on firms would vary. It is thus likely that the impact of the first year costs would be higher for some carriers, rising to a level that could be considered significant.

TABLE 14—IMPACT OF FIRST-YEAR COSTS ON AFFECTED FIRMS FOR OPTION 2

Type of cost	Sole proprietorships	Multiple power unit firms
First Year Cost Per Power Unit (A) <sup>a</sup> .....	\$820	\$902
Annual Revenue Per Power Unit (B) <sup>b</sup> .....	\$85,239	\$199,967
First Year Cost Impact as a Percentage of Annual Revenue (A/B) .....	0.96%	0.45%

<sup>a</sup> FMCSA analysis.

<sup>b</sup> FMCSA analysis of 2007 Economic Census data.

TABLE 15—IMPACT OF FIRST-YEAR COSTS ON AFFECTED FIRMS FOR OPTION 3

Type of cost	Sole proprietorships	Multiple power unit firms
First Year Cost Per Power Unit (A) <sup>a</sup> .....	\$500	\$552
Annual Revenue Per Power Unit (B) <sup>b</sup> .....	\$85,239	\$199,967
First Year Cost Impact as a Percentage of Annual Revenue (A/B) .....	0.59%	0.28%

<sup>a</sup> FMCSA analysis.

<sup>b</sup> FMCSA analysis of 2007 Economic Census data.

Annual Burden on Affected Small Entities

To analyze the annual burden on affected small entities for Options 2 and 3, we amortized the one-time costs over

a 10-year period, assuming a 7 percent discount rate. As shown in Table 16 for Option 2, the sum of the annual operating costs and the amortized one-time costs resulted in an annual burden

of \$647 per year over 10 years for sole proprietorships and an annual burden of \$711 per year over 10 years for firms with multiple power units. As shown in Table 17 for Option 3, the sum of the

<sup>63</sup>To be conservative in assessing potential impacts, the revenues per power unit are based only upon for-hire firms (that is, those in Truck Transportation). Drivers make up only a small

fraction of the labor force in other industries, which underlines the point that transportation is a small part of their operations. When the Agency has looked at the impact on private carriers in relation

to their revenue in the past, the percentage impact of costs to private carriers as a share of revenue have been generally been an order of magnitude smaller than the impacts on for-hire trucking firms.

annual operating costs and the amortized one-time costs resulted in an annual burden of \$327 per year over 10 years for sole proprietorships and an annual burden of \$359 per year over 10 years for firms with multiple power units.

Next, we compared the annual burden to the average annual revenues of affected firms. As shown in Table 16,

the annual costs of Option 2 are 0.76 percent of average annual revenue for sole proprietorships and 0.36 percent of average revenue for carriers with multiple power units. As shown in Table 17, the annual costs of Option 3 are 0.38 percent of average annual revenue for sole proprietorships and 0.18 percent of average revenue for

carriers with multiple power units. These percentages fall below what the Agency views as a reasonable threshold for a significant impact. However, as mentioned above, the impact may vary across carriers. Therefore, the annual impact of the regulations on some affected carriers may be significant in relation to their revenue.

TABLE 16—ANNUAL IMPACT OF COSTS ON FIRMS OVER 10 YEARS FOR OPTION 2

Type of cost	Sole proprietorships	Multiple power unit firms
Annual Cost per Power Unit (One Time Costs Amortized Over 10 Years) (A) <sup>a</sup>	\$647	\$711
Annual Revenue per Power Unit (B) <sup>b</sup>	\$85,239	\$199,967
Annual Cost Impact as a Percentage of Annual Revenue (A/B)	0.76%	0.36%

<sup>a</sup> FMCSA analysis.

<sup>b</sup> FMCSA analysis of 2007 Economic Census data.

TABLE 17—ANNUAL IMPACT OF COSTS ON FIRMS OVER 10 YEARS FOR OPTION 3

Type of Cost	Sole proprietorships	Multiple power unit firms
Annual Cost per Power Unit (One Time Costs Amortized Over 10 Years) (A) <sup>a</sup>	\$327	\$359
Annual Revenue per Power Unit (B) <sup>b</sup>	\$85,239	\$199,967
Annual Cost Impact as a Percentage of Annual Revenue (A/B)	0.38%	0.18%

<sup>a</sup> FMCSA analysis.

<sup>b</sup> FMCSA analysis of 2007 Economic Census data.

4. Discussion of the Impact on Affected Small Entities

The analysis of the impact of the HOS rule on small entities shows that, while it is unlikely for the rule to have a significant impact on most small entities, FMCSA cannot certify that there would be no significant impacts. For a typical firm, the first year costs of Options 2 and 3 are below 1 percent of revenues, as are the average annual costs when society spreads the costs over 10 years.

However, projecting the distribution of impacts across carriers, few of which fit the definition of typical, is made more difficult by the variability in both costs and revenues. The new HOS rule provisions are designed to rein in the most extreme patterns of work while leaving more moderate operations largely unchanged. As a result, we project a substantial majority of the costs of the rule to fall on the sixth of the industry currently logging the most hours per week. Thus, most carriers are likely to be almost unaffected, while a minority would experience productivity impacts—and hence costs—well above the industry average.

Average revenues presumably range widely as well, meaning that the ratio of costs to revenues is difficult to characterize. Because greater work intensities are likely to generate greater revenues, though, the impacts and revenues per power unit are likely to be

positively correlated: The carriers for which productivity is curtailed the most and which would incur the greatest costs would, therefore, be likely to have unusually large revenues per power unit as well.

These heavily affected carriers would still be likely to face costs that exceed the threshold used to define significant impacts. On the other hand, they could also have unusually high rates of profit in the baseline; because their drivers are currently putting in the most hours of work per week, they are able to spread their fixed costs over more hours. In other words, most of the impacts of the new HOS rule are likely to fall on the carriers with the greatest revenues and profit potential in the industry. These circumstances should reduce concern that large numbers of small carriers would experience significant impacts.

Another consideration in assessing the seriousness of the rule's impacts is that the industry is now gaining strength after an unusually deep recession. That recession depressed demand for transportation services. As the economy recovers, demand for the motor carrier industry is likely to recover as well, meaning that the new HOS rule's impacts could be experienced more as limitations on the potential growth in revenues than absolute reductions.

In recognition of the fact that the rule may significantly impact small entities, FMCSA explored options for decreasing

the burden on small entities. FMCSA did not consider the option of exempting small entities from this rule because doing so would substantially decrease the safety benefits of the rule due to the large number of drivers working for small entities. The rule addresses fatigue of individual drivers, which is not affected by the size of the employer. Several provisions of the proposed rule, including the restart provision, the opportunity for 16-hour driving windows, and the break provisions, however, were designed to afford maximum flexibility for drivers who work close to the legal maximum limits, thus reducing the productivity impacts on carriers while still realizing the safety benefits of the new rule. FMCSA expects small carriers and owner-operators to be among the main beneficiaries of these provisions.

5. A Description of the Projected 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 Requirement and the Type of Professional Skills Necessary for the Preparation of the Report or Record

The proposed rule does not change recordkeeping or reporting requirements. Drivers are required, by current rules, to keep records of duty status that document their daily and

weekly on-duty and driving time, and submit these records of duty status to their employing motor carrier on a bi-weekly basis. This rule would not change or add to this recordkeeping requirement for drivers or carriers. Drivers in all segments of the industry, including independent owner-operators, are well accustomed to complying with these recordkeeping and reporting requirements, and no professional skill over and above those skills that drivers already possess would be necessary for preparing these reports. All small entities within the industry would be subject to these rules. The type and classes of these small entities are described in the previous section of this analysis.

6. An Identification, to the Extent Practicable, of All Relevant Federal Rules Which May Duplicate, Overlap, or Conflict with this Proposal

The Agency is unaware of any Federal rules which may duplicate, overlap, or conflict with the proposed rule.

7. A Description of Any Significant Alternatives to the Proposed Rule Which Minimize Any Significant Impact on Small Entities

The Agency did not identify any significant alternatives to the proposed rule that could lessen the burden on small entities without compromising its goals. This rule is targeted at preventing driver fatigue, and the Agency is unaware of any alternative to restricting driver work that the Agency has authority to implement that would address driver fatigue. This rule impacts motor carrier productivity proportionally to the number of drivers a motor carrier employs and the intensity of the schedules that motor carrier's drivers work. It is not obvious that productivity losses would be greater for small entities than for larger firms. To the extent that drivers working for a small entity work more intense schedules, that entity may experience greater productivity losses than a carrier whose drivers work less intensely on a daily and weekly basis. However, there appears to be no alternative available to the Agency that would limit driver fatigue while allowing more work. To improve public safety, all drivers, regardless of the size of the carrier they work for, must work within reasonable limits.

The recordkeeping and reporting burdens related to this rule would also affect entities proportional to the number of drivers they employ, and therefore does not disproportionately affect small motor carriers in any way. As noted above, drivers in all segments

of the industry, working for entities of all sizes, are accustomed to compiling and submitting records of duty status on a regular basis. This rule would therefore not place an undue recordkeeping or reporting burden on smaller entities. The Agency seeks public comment on all aspects of this Initial Regulatory Flexibility Analysis.

C. Paperwork Reduction Act

This proposed rule would call for no new collection of information under the Paperwork Reduction Act of 1995 (44 U.S.C. 3501–3520).

D. National Environmental Policy Act

The Agency analyzed this NPRM for the purpose of the National Environmental Policy Act of 1969 (NEPA) (42 U.S.C. 4321 *et seq.*) and determined under our environmental procedures Order 5610.1, published March 1, 2004 in the **Federal Register** (69 FR 9680), that this action will not have a significant impact on the environment. FMCSA has also analyzed this proposed rule under the Clean Air Act, as amended (CAA) section 176(c), (42 U.S.C. 7401 *et seq.*) and implementing regulations promulgated by the Environmental Protection Agency. Approval of this action is exempt from the CAA's general conformity requirement since it would not result in any potential increase in emissions that are above the general conformity rule's de minimis emission threshold levels (40 CFR 93.153(c)(2)). A copy of the Environment Assessment is available in the docket.

E. Executive Order 13132 (Federalism)

A rule has implications for Federalism under Executive Order 13132, Federalism, if it has a substantial direct effect on State or local governments and would either preempt State law or impose a substantial direct cost of compliance on them. This action has been analyzed in accordance with E.O. 13132. FMCSA has determined this rule would not have a substantial direct effect on States, nor would it limit the policymaking discretion of States. Nothing in this document preempts any State law or regulation.

F. Privacy Impact Assessment

FMCSA conducted a Privacy Threshold Analysis (PTA) for the proposed rule on hours of service and determined that it is not a privacy-sensitive rulemaking because the rule will not require any collection, maintenance, or dissemination of Personally Identifiable Information (PII) from or about members of the public.

G. Executive Order 12630 (Taking of Private Property)

This proposed rule would 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.

H. Executive Order 12988 (Civil Justice Reform)

This proposed rule 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.

I. Executive Order 13045 (Protection of Children)

FMCSA analyzed this proposed rule under Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks. This rule would not create an environmental risk to health or risk to safety that might disproportionately affect children.

J. Executive Order 13211 (Energy Supply, Distribution, or Use)

FMCSA analyzed this proposed rule under Executive Order 13211, Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use. FMCSA determined that it is not a "significant energy action" under that order. Though it is a "significant regulatory action" under Executive Order 12866, it is not likely to have a significant adverse effect on the supply, distribution, or use of energy. The Administrator of the Office of Information and Regulatory Affairs has not designated it as a significant energy action. Therefore, it does not require a Statement of Energy Effects under Executive Order 13211.

K. Executive Order 12898 (Environmental Justice)

FMCSA evaluated the environmental effects of this NPRM in accordance with Executive Order 12898 and determined that there are no environmental justice issues associated with its provisions nor any collective environmental impact that could result from its promulgation. Environmental justice issues would be raised if there were "disproportionate" and "high and adverse impact" on minority or low-income populations. None of the alternatives analyzed in the Agency's EA, discussed under NEPA, would result in high and adverse environmental impacts.

L. Unfunded Mandate Reform Act

The Unfunded Mandate Reform Act of 1995 (2 U.S.C. 1531–1538) requires Federal agencies to assess effects of their discretionary regulatory actions. In particular, the Act addresses actions that may result in the net expenditure by a State, local, or Tribal government, in the aggregate, or by the private sector of \$140.3 million or more in any one year. Though this rule would not result in a net expenditure at this level, the economic impacts of the proposed rule have been analyzed in the RIA.

List of Subjects

49 CFR Part 385

Administrative practice and procedure, Highway safety, Mexico, Motor carriers, Motor vehicle safety, Reporting and recordkeeping requirements.

49 CFR Part 386

Administrative practice and procedure, Brokers, Freight forwarders, Hazardous materials transportation, Highway safety, Motor carriers, Motor vehicle safety, Penalties.

49 CFR Part 390

Highway safety, Intermodal transportation, Motor carriers, Motor vehicle safety, Reporting and recordkeeping requirements.

49 CFR Part 395

Highway safety, Motor carriers, Reporting and recordkeeping requirements.

In consideration of the foregoing, FMCSA is proposing to amend 49 CFR Chapter III, parts 385, 386, 390, and 395 as set forth below:

PART 385—SAFETY FITNESS PROCEDURES

1. The authority citation continues to read as follows:

Authority: 49 U.S.C. 113, 504, 521(b), 5105(e), 5109, 13901–13905, 31133, 31135, 31136, 31137(a), 31144, 31148, and 31502; Sec. 113(a), Pub. L. 103–311; Sec. 408, Pub. L. 104–88; Sec. 350, Pub. L. 107–87; and 49 CFR 1.73.

2. In Appendix B to part 385, amend section VII, List of Acute and Critical Violations, as follows:

- a. Revise the entries for § 395.3(a)(1) and § 395.3(a)(2);
b. Add two entries for § 395.3(a)(3) and one entry for § 395.3(a)(4); and
c. Remove the entries for § 395.3(c)(1), § 395.3(c)(2), and § 395.1(o).

Appendix B to Part 385—Explanation of Safety Rating Process

\* \* \* \* \*

§ 395.3(a)(1) Requiring or permitting a property-carrying commercial motor vehicle driver to drive without taking an off-duty period of at least 10/11 consecutive hours prior to driving (critical).

§ 395.3(a)(2) Requiring or permitting a property-carrying commercial motor vehicle driver to drive or be on duty after the end of the 14th hour after coming on duty and after the end of the 16th hour after coming on duty on 2 days out of the previous 168 consecutive hours (critical).

§ 395.3(a)(3) Requiring or permitting a property-carrying commercial motor vehicle driver to drive more than 10/11 hours (critical).

§ 395.3(a)(3) Requiring or permitting a property-carrying commercial motor vehicle driver to drive if more than 7 hours have passed since the driver's last off-duty or sleeper-berth period of at least 30 minutes (critical).

§ 395.3(a)(4) Requiring or permitting a property-carrying commercial motor vehicle driver to be on duty more than 13 hours during a 14-hour or 16-hour driving window (critical).

\* \* \* \* \*

3. Amend Appendix C to part 385 as follows:

- a. Revise the entries for § 395.3(a)(1) and § 395.3(a)(2);
b. Add two entries for § 395.3(a)(3) and one entry for § 395.3(a)(4);
c. Remove the entries for § 395.3(c)(1), § 395.3(c)(2), and § 395.1(o).

Appendix C to Part 385—Regulations Pertaining to Remedial Directives in Part 385, Subpart J

\* \* \* \* \*

§ 395.3(a)(1) Requiring or permitting a property-carrying commercial motor vehicle driver to drive without taking an off-duty period of at least 10 consecutive hours prior to driving.

§ 395.3(a)(2) Requiring or permitting a property-carrying commercial motor vehicle driver to drive or be on duty after the end of the 14th hour after coming on duty and after the end of the 16th hour after coming on duty on 2 days out of the previous 168 consecutive hours.

§ 395.3(a)(3) Requiring or permitting a property-carrying commercial motor vehicle driver to drive more than 10/11 hours.

§ 395.3(a)(3) Requiring or permitting a property-carrying commercial motor vehicle driver to drive if more than 7 hours have passed since the driver's last off-duty or sleeper-berth period of at least 30 minutes.

§ 395.3(a)(4) Requiring or permitting a property-carrying commercial motor vehicle driver to be on duty more than 13 hours during a 14-hour or 16-hour driving window.

\* \* \* \* \*

PART 386—RULES OF PRACTICE FOR MOTOR CARRIER, INTERMODAL EQUIPMENT PROVIDER, BROKER, FREIGHT FORWARDER, AND HAZARDOUS MATERIALS PROCEEDINGS

4. The authority citation for part 386 continues to read as follows:

Authority: 49 U.S.C. 521, 5123, 13301, 13902, 14915, 31132–31133, 31136, 31144, 31151, 31502, 31504; Sec. 204, Pub. L. 104–88, 109 Stat. 803, 941 (49 U.S.C. 701 note); Sec. 217, Pub. L. 105–159, 113 Stat. 1748, 1767; and 49 CFR 1.73.

5. Amend Appendix B to part 386 by adding a new paragraph (a)(6) to read as follows:

Appendix B to Part 386—Penalty Schedule; Violations and Maximum Civil Penalties

\* \* \* \* \*

(a) \* \* \*

(6) Egregious violations of driving-time limits in 49 CFR part 395. A driver who exceeds, and a motor carrier that requires or permits a driver to exceed, by more than 3 hours the 10/11-hour driving-time limit in 49 CFR 395.3(a) or the 10-hour driving-time limit in 49 CFR 395.5(a), as applicable, shall be deemed to have committed an egregious driving-time limit violation. In instances of an egregious driving-time violation, the Agency will consider the "gravity of the violation," for purposes of 49 U.S.C. 521(b)(2)(D), sufficient to warrant imposition of penalties up to the maximum permitted by law.

\* \* \* \* \*

PART 390—FEDERAL MOTOR CARRIER SAFETY REGULATIONS; GENERAL

6. The authority citation for part 390 continues to read as follows:

Authority: 49 U.S.C. 508, 13301, 13902, 31132, 31133, 31136, 31144, 31151, 31502, 31504; sec. 204, Pub. L. 104–88, 109 Stat. 803, 941 (49 U.S.C. 701 note); sec. 114, Pub. L. 103–311, 108 Stat. 1673, 1677; sec. 212, 217, 229, Pub. L. 106–159, 113 Stat. 1748, 1766, 1767, 1773; sec. 4136, Pub. L. 109–59, 119 Stat. 1144, 1745 and 49 CFR 1.73.

7. Amend § 390.23, by revising paragraph (c)(2) introductory text to read as follows:

§ 390.23 Relief from regulations.

\* \* \* \* \*

(c) \* \* \*

(2) The driver has had at least 34 consecutive hours off duty, including two consecutive periods from midnight to 6 a.m. when:

\* \* \* \* \*

**PART 395—HOURS OF SERVICE OF DRIVERS**

8. The authority citation for part 395 continues to read as follows:

**Authority:** 49 U.S.C. 508, 13301, 13902, 31133, 31136, 31502, 31504, and § 204, Pub. L. 104–88, 109 Stat. 803, 941 (49 U.S.C. 701 note); Sec. 114, Pub. L. 103–311, 108 Stat. 1673, 1677; Sec. 217, Pub. L. 106–159, 113 Stat. 1748, 1767; and 49 CFR 1.73.

9. Amend § 395.1 as follows:

- a. Revise paragraphs (b)(1), (d)(2), and (e)(1)(iv), (e)(2) introductory text, (e)(2)(v), (e)(2)(viii), (g)(1), and (g)(2)(ii);
- b. Remove and reserve paragraph (o); and
- c. Remove paragraph (q).

**§ 395.1 Scope of rules in this part.**

\* \* \* \* \*

(b) \* \* \*

(1) *Adverse driving conditions.* Except as provided in paragraph (h)(2) of this section, a driver who encounters adverse driving conditions, as defined in § 395.2, and cannot, because of those conditions, safely complete the run within the maximum driving time permitted by §§ 395.3(a) or 395.5(a) may drive and be permitted or required to drive a commercial motor vehicle for not more than 2 additional hours to complete that run or to reach a place offering safety for the occupants of the commercial motor vehicle and security for the commercial motor vehicle and its cargo. However, that driver may not drive or be permitted to drive—

- (i) For more than 12 hours in the aggregate following 10 consecutive hours off duty for drivers of property-carrying commercial motor vehicles;
- (ii) After the end of the 14th or 16th hour since coming on duty following 10 consecutive hours off duty for drivers of property-carrying commercial motor vehicles, pursuant to § 395.3(a)(2);
- (iii) For more than 12 hours in the aggregate following 8 consecutive hours off duty for drivers of passenger-carrying commercial motor vehicles; or
- (iv) After he/she has been on duty 15 hours following 8 consecutive hours off duty for drivers of passenger-carrying commercial motor vehicles.

\* \* \* \* \*

(d) \* \* \*

(2) In the case of specially trained drivers of commercial motor vehicles which are specially constructed to service oil wells, on-duty time shall not include waiting time at a natural gas or oil well site. Such waiting time shall be recorded as “off duty” for purposes of §§ 395.8, 395.15, and 395.16, with remarks or annotations to indicate the specific off-duty periods that are waiting time, or on a separate “waiting time”

line on the record of duty status to show that off-duty time is also waiting time. Waiting time shall not be included in calculation of the 14- or 16-hour duty period in § 395.3(a)(2). Specially trained drivers of such commercial motor vehicles are not eligible to use the provisions of § 395.1(e)(1).

(e) \* \* \*

(1) \* \* \*

(iv)(A) A property-carrying commercial motor vehicle driver does not exceed 10/11 hours maximum driving time following 10 consecutive hours off duty; or

(B) A passenger-carrying commercial motor vehicle driver does not exceed 10 hours maximum driving time following 8 consecutive hours off duty; and

\* \* \* \* \*

(2) *Operators of property-carrying commercial motor vehicles not requiring a commercial driver’s license.* Except as provided in this paragraph, a driver is exempt from the requirements of § 395.3 and § 395.8 and ineligible to use the provisions of § 395.1(e)(1) and (g) if:

\* \* \* \* \*

(v) The driver does not drive more than 10 hours following at least 10 consecutive hours off duty;

\* \* \* \* \*

(viii) Any period of 7 or 8 consecutive days may end with the beginning of any off-duty period of 34 or more consecutive hours that includes two consecutive periods from midnight to 6 a.m.; the beginning of an off-duty period of 34 or more consecutive hours must be at least 168 hours after the beginning of the last such off-duty period.

\* \* \* \* \*

(g) \* \* \*

(1) *Property-carrying commercial motor vehicle.*—

(i) *In General.* A driver who operates a property-carrying commercial motor vehicle equipped with a sleeper berth, as defined in §§ 395.2 and 393.76 of this subchapter,

(A) Must, before driving, accumulate

(1) At least 10 consecutive hours off duty;

(2) At least 10 consecutive hours of sleeper-berth time;

(3) A combination of consecutive sleeper-berth and off-duty time amounting to at least 10 hours; or

(4) The equivalent of at least 10 consecutive hours off duty if the driver does not comply with paragraph (g)(1)(i)(A)(1), (2), or (3) of this section;

(B) May not drive more than 10/11 hours following one of the 10-hour off-duty periods specified in paragraph (g)(1)(i)(A)(1) through (4) of this section; however, driving is permitted only if 7 hours or less have passed since the

driver’s last off-duty or sleeper-berth period of at least 30 minutes; and

(C) May not be on duty for more than the 13-hour period in § 395.3(a)(4) or drive beyond the 14- or 16-hour driving window in § 395.3(a)(2) after coming on duty following one of the 10-hour off-duty periods specified in paragraph (g)(1)(i)(A)(1)–(4) of this section; and

(D) Must exclude from the calculation of the 14- or 16-hour driving window in § 395.3(a)(2) any sleeper-berth period of at least 8 but less than 10 consecutive hours.

(ii) *Specific requirements.*—The following rules apply in determining compliance with paragraph (g)(1)(i) of this section:

(A) The term “equivalent of at least 10 consecutive hours off duty” means a period of

(1) At least 8 but less than 10 consecutive hours in a sleeper berth, and

(2) A separate period of at least 2 but less than 10 consecutive hours either in the sleeper berth or off duty, or any combination thereof.

(B) Calculation of the 10/11-hour driving limit includes all driving time; compliance must be re-calculated from the end of the first of the two periods used to comply with paragraph (g)(1)(ii)(A) of this section.

(C) Calculation of the 14- or 16-hour limit in § 395.3(a)(2) includes all time except any sleeper-berth period of at least 8 but less than 10 consecutive hours and up to 2 hours riding in the passenger seat of a property-carrying vehicle moving on the highway immediately before or after a period of at least 8 but less than 10 consecutive hours in the sleeper berth; compliance must be re-calculated from the end of the first of the two periods used to comply with the requirements of paragraph (g)(1)(ii)(A) of this section.

(2) \* \* \*

(ii) The driving time in the period immediately before and after each rest period, when added together, does not exceed 10/11 hours;

\* \* \* \* \*

(o) [Reserved]

\* \* \* \* \*

10. Amend § 395.2 by revising the definition of “on duty time” to read as follows:

**§ 395.2 Definitions.**

\* \* \* \* \*

*On-duty time* means all time from the time a driver begins to work or is required to be in readiness to work until the time the driver is relieved from work and all responsibility for performing work. *On-duty time* shall include:



(1) All time at a plant, terminal, facility, or other property of a motor carrier or shipper, or on any public property, waiting to be dispatched, unless the driver has been relieved from duty by the motor carrier;

(2) All time inspecting, servicing, or conditioning any commercial motor vehicle at any time;

(3) All driving time as defined in the term *driving time*;

(4) All time in or on a commercial motor vehicle, other than:

(i) Time spent resting in or on a parked vehicle;

(ii) Time spent resting in a *sleeper berth*; or

(iii) Up to 2 hours riding in the passenger seat of a property-carrying vehicle moving on the highway immediately before or after a period of at least 8 consecutive hours in the sleeper berth;

(5) All time loading or unloading a commercial motor vehicle, supervising, or assisting in the loading or unloading, attending a commercial motor vehicle being loaded or unloaded, remaining in readiness to operate the commercial motor vehicle, or in giving or receiving receipts for shipments loaded or unloaded;

(6) All time repairing, obtaining assistance, or remaining in attendance upon a disabled commercial motor vehicle;

(7) All time spent providing a breath sample or urine specimen, including travel time to and from the collection site, to comply with the random, reasonable suspicion, post-crash, or follow-up testing required by part 382 of this subchapter when directed by a motor carrier;

(8) Performing any other work in the capacity, employ, or service of, a motor carrier; and

(9) Performing any compensated work for a person who is not a motor carrier.

\* \* \* \* \*

11. Revise § 395.3 to read as follows:

**§ 395.3 Maximum driving time for property-carrying vehicles.**

(a) Except as otherwise provided in § 395.1, no motor carrier shall permit or require any driver used by it to drive a property-carrying commercial motor vehicle, nor shall any such driver drive a property-carrying commercial motor vehicle, regardless of the number of motor carriers using the driver's services, unless the driver complies with the following requirements:

(1) *Start of work shift.* A driver may not drive without first taking 10 consecutive hours off duty;

(2) *Driving window.* (i) *In General.*—A driver may drive only during a driving window of 14 consecutive hours after coming on duty following 10 consecutive hours off duty. The driver may not drive after the end of the driving window without first taking 10 consecutive hours off duty.

(ii) *Exception.*—A driver may drive during a driving window of 16 consecutive hours after coming on duty following 10 consecutive hours off duty on no more than 2 days out of the previous 168 consecutive hours. The driver may not drive after the end of the driving window without first taking 10 consecutive hours off duty.

(iii) Drivers who are on duty after the end of the 14th hour after coming on duty are deemed to have used a 16-hour driving window.

(iv) Drivers must go off duty by the end of the 14th or 16th consecutive hour after coming on duty.

(3) *Driving time and rest breaks.* A driver may drive a total of 10/11 hours during the on-duty period specified in paragraph (a)(4) of this section, but driving is permitted only if 7 hours or less have passed since the driver's last off-duty or sleeper-berth period of at least 30 minutes.

(4) *On-duty period.* A driver may be on duty no more than 13 hours during the 14-hour or 16-hour driving window.

(b) No motor carrier shall permit or require a driver of a property-carrying

commercial motor vehicle to drive, nor shall any driver drive a property-carrying commercial motor vehicle, regardless of the number of motor carriers using the driver's services, for any period after—

(1) Having been on duty 60 hours in any period of 7 consecutive days if the employing motor carrier does not operate commercial motor vehicles every day of the week; or

(2) Having been on duty 70 hours in any period of 8 consecutive days if the employing motor carrier operates commercial motor vehicles every day of the week.

(c)(1) Any period of 7 consecutive days may end with the beginning of an off-duty period of 34 or more consecutive hours that includes two consecutive periods from midnight to 6 a.m.; or

(2) Any period of 8 consecutive days may end with the beginning of an off-duty period of 34 or more consecutive hours that includes two consecutive periods from midnight to 6 a.m.

(d) A driver may not take an off-duty period allowed by paragraph (c) of this section to restart the calculation of 60 hours in 7 consecutive days or 70 hours in 8 consecutive days until 168 or more consecutive hours have passed since the beginning of the last such off-duty period. When a driver takes more than one off-duty period of 34 or more consecutive hours within a period of 168 consecutive hours, he or she must indicate in the Remarks section of the record of duty status which such off-duty period is being used to restart the calculation of 60 hours in 7 consecutive days or 70 hours in 8 consecutive days.

Issued on: December 20, 2010.

**Anne S. Ferro,**  
*Administrator.*

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