Ignoring substantial research linking long driving hours with increased crash risk, the Federal Highway Administration (FHWA) may relax rules governing truck drivers' time on the road.

Congress directed FHWA to reassess current hours-of-service rules in 1995 as the agency assumed some duties of the defunct Interstate Commerce Commission. While acknowledging only that modifications to current hours-of-service rules are being considered, FHWA's advance notice of proposed rulemaking makes clear that motor carrier "efficiency" and "productivity" now rank with safety among FHWA priorities.

"FHWA's main focus has been, and will continue to be, on motor carrier safety, but now the FHWA must consider the economic vitality and productivity of the motor carrier industry, ..." the agency states in its notice.
"Hours-of-service regulations should be reassessed," says Allan F. Williams, Institute senior vice president. "But the evidence shows they should be strengthened, not weakened or replaced."

Long hours raise crash risk: Commercial vehicle drivers aren’t permitted to drive more than 10 hours or work more than 13 hours at a stretch before taking an 8-hour rest. Drivers may not drive more than 60 hours during a 7-day period nor more than 70 hours during an 8-day period, depending on whether their carrier operates 6 or 7 days a week.

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The study, which is the centerpiece of the current rulemaking, concludes fatigue is less related to the number of driving hours than to the time of day when driving took place. However, the Institute has identified numerous weaknesses in the study, as did a nine-member panel of experts assembled by FHWA to review it.

These weaknesses in design, data collection, and data analysis limit the conclusions that can be drawn about driving hours (see page 3).

Numerous studies have demonstrated fatigue is related to the absolute number of hours driven regardless of time of day, Braver says. But allowing longer rest periods would mean drivers wouldn’t have to sleep for 8 hours, but it would allow them to make this choice, he says. Eight-hour rest periods guarantee drivers don’t sleep enough.

However, mandating longer rest periods wouldn’t accomplish its purpose if the mandate were frequently violated, a consequence of the well-documented inadequacies of handwritten logbooks. FHWA should enforce adherence by requiring onboard computers, which record vehicle travel time, in large trucks engaged in interstate commerce (see page 7).

“It’s puzzling that FHWA would announce it intends to allow untested driver performance measurement devices while not proposing to require onboard computers, technology used successfully by motor carriers from 8 hours to a longer period, preferably 12-14 hours,” says Braver.

For example, drivers in FHWA’s fatigue study averaged 9.3 hours off-duty time between trips, of which actual sleep time averaged 4.8 hours. The mandated rest period must be long enough to allow drivers not only to sleep 8 hours but also to pursue normal activities.

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But devices designed to detect alertness haven’t been adequately tested, says Elisa R. Braver, Institute senior research analyst. FHWA in its study encountered a variety of problems with different devices and acknowledges “the driver alertness monitoring devices developed so far would fail to meet many of the necessary operational and driver acceptance criteria.”

FHWA’s notion that a performance-based system evaluating each driver is preferable to a prescriptive system with universal criteria such as hours-of-service rules is debatable, Braver says.

“Too keep truckers at highest risk of fatigue impairment from driving, there needs to be a single, enforceable standard for all long-haul drivers,” Braver says. “This standard must be objective, easily understood, and easily measured by enforcement agencies.

“Driving longer than 10 hours in one shift or longer than 70 hours within 8 days is a reasonable indicator of fatigue.”

Braver notes that determining fatigue impairment is exceedingly complicated. “Attempting to implement a system based on individual performance will reduce both enforcement capability and deterrence against breaking rules designed to prevent fatigued driving,” she says.

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Eighty commercial motor vehicle drivers in the United States and Canada each were monitored for a four- or five-day period. Four groups of 20 drivers followed different schedules. Factors thought to contribute to fatigue were studied, including time spent driving during a work period, number of consecutive driving days, time of day driving took place, and length of sleep periods.

The Institute agrees with the review panel that the fatigue study sample was unrepresentative and biased toward “better” drivers. For example, no one in the study drove more than 52 hours per week — no driver followed a typical long-haul schedule that permits 70 hours of driving over 8 days. And all were employed by less-than-truckload motor carriers with large fleets, which are trucking firms that typically have stronger safety programs, better and more highly paid drivers, and lower crash rates.

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As the review panel noted, the study was designed to look at the effects of hours of driving while controlling for the effects of time of day. These two variables were inextricably linked. For example, night driving typically occurred after many hours on the road.

“If FHWA had chosen to devote its resources to good study design rather than to expensive and unnecessary measurements, such as electromyograms, valsalva maneuver, and nitrogen dioxide, the study could have shed light on the critical questions of the independent and combined effects of long hours of driving and time of day” says Braver.

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“The strongest and most consistent factor influencing driver fatigue and alertness in this study was time of day. . . . Hours of driving (time-on-task) was not a strong or consistent predictor of observed fatigue.” This is the main conclusion of the Commercial Motor Vehicle Driver Fatigue and Alertness Study, cosponsored by the Federal Highway Administration and the American Trucking Associations’ Trucking Research Institute.

Some experts, including Insurance Institute for Highway Safety researchers, believe the authors erred in reaching their conclusions. Both driving hours and time of day are important factors contributing to fatigue.

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Technology no substitute for rules: The FHWA study relied extensively on technological devices to track driver alertness and detect fatigue. These devices monitor eye closure, head nodding, reaction time, lane tracking, steering, or sleep duration. FHWA says essentially it would like to allow motor carriers to abandon hours-of-service rules in favor of technology determining drivers’ fitness for duty.

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One size fits all: Some trucking industry representatives criticized current hours-of-service rules as an approach based on “one size fits all.” They contend FHWA should decide whether to apply rules to each individual motor carrier based on past safety records. But deciding which carrier merits exemptions and then enforcing different rules for different ones would be a logistical nightmare that would absorb scarce government resources. Moreover, using past

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Fatigue management plans: Some truckers speak favorably of a proposal in Australia to revise hours-of-service rules. It would mandate 12-hour driving limits and 12-hour rest periods but would exempt those truckers with a "fatigue management system."

Carriers using fatigue management systems are supposed to educate drivers about the need for adequate sleep and consider driver rest needs when making schedules. No constraints on drivers' schedules are specified except that they must rest at least 6 hours in every 24.

No research has shown such exemptions will reduce fatigue-impaired driving. In fact, one Australian study reported truckers showed increasing fatigue during a 12-hour trip, whether or not they had to adhere to hours-of-service rules.

In a survey of 960 Australian truckers, a high percentage reported they don't comply with existing hours-of-service rules, in large part because of delivery deadlines. According to several different surveys, many Australian commercial drivers report taking stay-awake drugs to combat fatigue.

Substituting vaguely defined fatigue management systems for clearly specified hours-of-service rules would increase the economic pressures that lead Australian truckers to work excessive hours and use stimulants. Braver says U.S. and Canadian drivers also report intense scheduling pressures that are linked with hours-of-service violations and drug use.

U.S. hours-of-service rules already have flexibility to deal with events like natural emergencies that may require longer driving hours. Also, the regulations set clearly defined limits on pickup and delivery schedules, keeping carriers who adhere to driving hour rules from being at a competitive disadvantage.

Trucking wants federal regulators to relax rules dictating how much time truckers spend on the road and on duty. Safety groups advocate tightening hours-of-service rules because fatigue worsens in the trucking industry.

The American Trucking Associations (ATA) and the Truckload Carriers Association propose for drivers a total maximum on-duty period that doesn't distinguish between driving hours and time on the job doing such things as loading or unloading a truck. Rules allow drivers 10 hours on the road and 15 hours on duty before resting 8 hours. ATA suggests allowing truckers to drive for up to 15 hours without sustained rest. The Truckload Carriers Association recommends 14-on-duty hours.

Motor carriers with "fatigue management systems" and good safety records should be allowed to disregard hours-of-service rules, trucking groups say. ATA advises regulators to retain the cap on the cumulative hours truckers work before taking required rest but erase or "restart" those hours whenever a driver has been off duty 24 hours. This means drivers could drive as much as 100 hours in 8 days. The carriers association proposes a 24-hour "day of rest" for drivers who have finished 70 hours of work.

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(see Status Report, Vol. 31, No. 1, Feb. 3, 1996). The project will be evaluated after
two years and “permanent rules resembling
the guidelines of this project may be indicated at that time,” FHWA says in its
June 10 Notice of Final Determination.

Program participation is voluntary, and carriers must apply for admission.
FHWA says it’s limiting participation to “motor carriers which have exemplary safety
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To be admitted, carriers must not have received an “unsatisfactory” safety fitness
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mile traveled, averaged over the previous 36 months, and must recalculate
their crash rates every six months.

Carriers also must have a written “safet-
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the plan “may entail no more than submit-
ting pertinent portions of a company’s cur-
rent operating plan or similar document.”

Braver says, “Particularly disturbing is
FHWA’s plan to rely on self-reports of mo-
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these exemptions from logbook rules. Car-
rriers have an obvious economic incentive
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Drivers employed by participating mo-
tor carriers won’t have to record their
driving work, or rest hours in logs or
onboard computers, although they still
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FHWA thinks these drivers will comply
with the rules despite not being required
to keep records.

Eliminating this requirement, FHWA
says, “does not place the motoring public
in danger. Safety investigators will rely
more heavily upon other evidence, such
as fuel and toll receipts, bills of lading,
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Elisa R. Braver, Institute senior re-
search analyst, notes hours-of-service
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they’ve driven,” she says.

Program exempting
medium trucks from
logbook regulations
could spur violations

Forget hours-of-service record keeping
for drivers of medium trucks.

The Federal Highway Administration
(FHWA) has embarked on a three-year pilot
program that essentially lifts logbook regu-
lations for interstate motor carriers operat-
ing medium trucks (those between 10,001
and 26,000 pounds).

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Onboard computers
should reduce hours-
of-service infractions

While the Federal Highway Administra-
tion debates new and untested technology
to address the problem of truck driver fa-
tigue, there’s older technology that can mitigate this hazard.

In 1995, 1989, 1987, and 1986, the Insti-
tute petitioned the Federal Highway Ad-
ministration to require onboard recording
devices in large trucks to increase adher-
FHWA plans to use the Motor Carrier Regulatory Relief and Safety Demonstration Project mandated by Congress in 1995 to help determine if medium weight trucks and their drivers should in the future comply with federal motor carrier safety regulations for interstate carriers (see Status Report, Vol. 31, No. 1, Feb. 3, 1996). The project will be evaluated after two years and “permanent rules resembling the guidelines of this project may be indicated at that time,” FHWA says in its June 10 Notice of Final Determination.

Program participation is voluntary, and carriers must apply for admission. FHWA says it’s limiting participation to “motor carriers which have exemplary safety histories” with crash rates “equal to or better than that of the top 25 percent of all motor carriers.”

To be admitted, carriers must not have received an “unsatisfactory” safety fitness rating from FHWA. Carriers who have never been rated — about 65 percent of all carriers — are eligible to participate. Carriers must claim a crash rate equal to or less than 1.6 police-reported crashes per million miles traveled, averaged over the previous 36 months, and must recalculate their crash rates every six months.

Carriers also must have a written “safety control plan” detailing how they will ensure safety isn’t compromised. FHWA says the plan “may entail no more than submitting pertinent portions of a company’s current operating plan or similar document.”

Braver says, “Particularly disturbing is FHWA’s plan to rely on selfreports of motor carriers to determine if they qualify for these exemptions from logbook rules. Carriers have an obvious economic incentive to understate their crash rates.”

Drivers employed by participating motor carriers won’t have to record their driving work, or rest hours in logbooks or onboard computers, although they still must comply with hours-of-service rules. FHWA thinks these drivers will comply with the rules despite not being required to keep records.

Eliminating this requirement, FHWA says, “does not place the motoring public in danger. Safety investigators will rely more heavily upon other evidence, such as fuel and toll receipts, bills of lading, and trip reports to determine if on-duty or driving time violations are present.”

Elisa R. Braver, Institute senior research analyst, notes hours-of-service rules now are widely flouted, and removing the logbook requirement is likely to increase these violations. “It is all too easy for drivers to tell inspectors they have no fuel or toll receipts to show the hours they’ve driven,” she says.

Onboard computers should reduce hours-of-service infractions

While the Federal Highway Administration debates new and untested technology to address the problem of truck driver fatigue, there’s older technology that can mitigate this hazard.

In 1995, 1989, 1987, and 1986, the Institute petitioned the Federal Highway Administration to require onboard recording devices in large trucks to increase adherence to hours-of-service rules (see Status Report, Vol. 30, No. 7, Aug. 12, 1995). These devices are computers that electronically record driving times, vehicle speeds, and other parameters. They can be used to address the problem of falsified logbooks, as well as reduce record-keeping burdens.

A 1992 Institute survey of 1,249 truck drivers reported fewer than 20 percent thought written logbooks reflect the actual hours most drivers work (see Status Report, Vol. 27, No. 2, Feb. 8, 1992). In a 1997 survey conducted by researchers from the State University of New York at Albany, more than 40 percent of truck drivers reported they drive more hours than they record in logbooks. In contrast to logbooks, data from onboard computers cannot be falsified easily.

Since the 1980s, a number of motor carriers have voluntarily installed onboard computers, and their use is expanding rapidly to meet increased demand for improved communications between shippers and their customers. Rockwell International Corporation reports nearly 200,000 onboard computers are already installed on commercial vehicles.

“It keeps everybody honest,” says a spokesperson for Frito-Lay. The company has been using onboard computers for more than 10 years. “No one can cheat the system.” Other motor carriers using the computers include United Parcel Service and Domino’s Pizza.

Truck safety inspectors told Institute researchers dramatically fewer hours-of-service violations are found in audits of motor carriers using onboard computers. But most onboard computers aren’t used to track driving hours, and inspectors typically don’t have the ability to check the devices during roadside inspections. If onboard computers were mandatory, they could be routinely checked during roadside inspections.

The cost of installing onboard computers is less than $1,000 per truck. Onboard computers also allow motor carriers to save fuel costs by monitoring traveling speeds and idle times and protect drivers and carriers from economic pressures to violate hours-of-service rules. The most significant benefit is their potential to increase adherence to hours-of-service rules.
This special issue focuses on truck driver fatigue. Other special issues have focused on the following subjects:

- Head restraints ........................... 32:4, 1997
- Side impact ............................... 31:8, 1996
- Driver death rates ....................... 30:9, 1995
- Whiplash injuries ....................... 30:8, 1995
- Airbag effectiveness ..................... 30:3, 1995
- 16-year-old drivers ................. 29:13, 1995
- Driver death rates ................. 29:11, 1994
- IVHS ........................................ 29:8, 1994
- One day of fatal crashes .......... 28:12, 1993
- Airbags in perspective ............. 28:11, 1993
- Safety belt laws ....................... 28:6, 1993

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