STATEMENT OF

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AND MERCHANT MARINE
INFRASTRUCTURE, SAFETY, AND SECURITY

HEARING ON RAIL SAFETY REAUTHORIZATION

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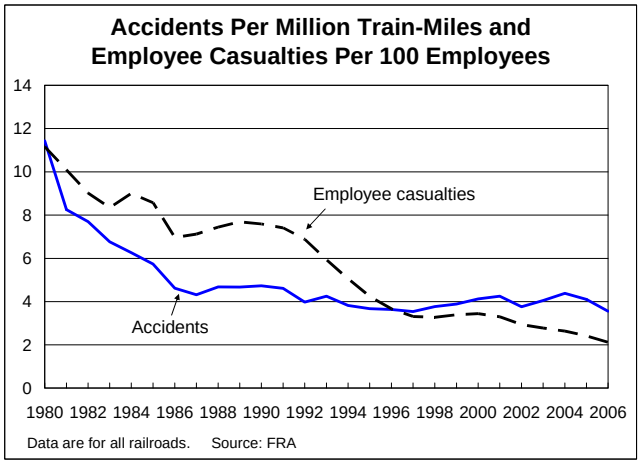
On behalf of the members of the Association of American Railroads (AAR), thank you for the opportunity to address rail safety. AAR members account for the vast majority of freight railroad mileage, employees, and traffic in Canada, Mexico, and the United States.

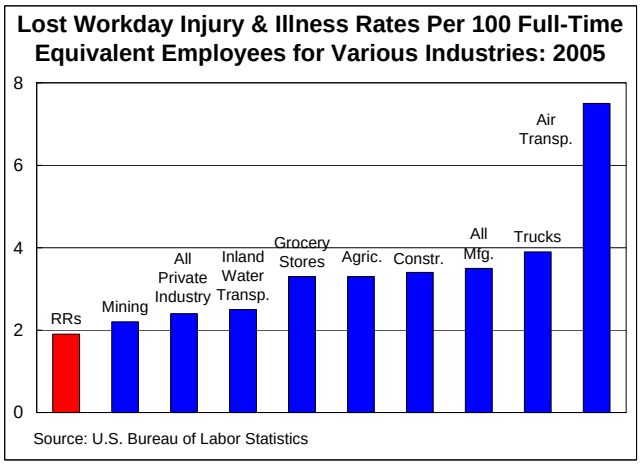
Overview of Rail Safety

For railroads, pursuing safe operations is not an option, it is an imperative. It makes business sense and it's the right thing to do. Through massive investments in safety-enhancing infrastructure, equipment, and technology; extensive employee training; cooperation with labor, suppliers, customers, communities, and the Federal Railroad Administration (FRA); cutting-edge research and development; and steadfast commitment to applicable laws and regulations, railroads are at the forefront of advancing safety.

The overall U.S. rail industry safety record is excellent. As an FRA official noted in February 2007 testimony to Congress, "The railroads have an outstanding record in moving all goods safely." Rail safety continues to improve. In fact, in aggregate 2006 was the safest year for railroads ever. According to FRA data, the rail employee casualty rate in 2006 was the lowest in history, having fallen 81 percent since 1980. Likewise, the grade crossing collision rate in 2006 was the lowest ever, having fallen 76 percent since 1980. And from 1980 to 2006, railroads reduced their overall train accident rate by 69 percent. The train accident rate in 2006 was just fractionally higher than the record low.



Decades ago, railroads were among the most dangerous industries to work for. That's no longer true. In fact, according to U.S. Department of Labor data, railroads today have lower employee injury rates than other modes of transportation and most other major industry groups, including agriculture, construction, manufacturing, and private industry as a whole. Available data also indicate that U.S. railroads have employee injury rates well below those of most major foreign railroads.



Railroads are proud of their safety record, which results from railroads' recognition of their responsibilities regarding safety and the enormous resources they devote to its advancement. At the same time, railroads want rail safety to continue to improve. Railroads are always willing to work cooperatively with you, other policymakers, the FRA, rail employees, and others to find practical, effective ways to make this happen.

A commitment to safety that permeates the workplace is critical to promoting safety. Railroads have that commitment. But a healthy balance sheet is important to safety as well. A financially-viable railroad will be in a much better position to invest in safety enhancements (*e.g.*, heavier rail, newer freight cars and locomotives, technology R&D, more sophisticated training, and so on) than a financially-weak carrier. The record investments that railroads have made in their infrastructure, equipment, and technology in recent years have made railroads much safer, and these investments were made possible by the moderate improvements in profitability that railroads have enjoyed. Consequently, legislative or regulatory actions that created significant new spending requirements and/or unduly restricted

rail earnings could have unintended negative safety consequences in addition to negative capacity, efficiency, and service reliability consequences.

Of course, no budget is unlimited, even for something as important as safety and even for railroads that have experienced financial improvement in recent years. Safety will not be advanced if resources are spent on programs that do little to improve safety or if unfunded mandates lock up resources that would have a more significant impact on safety if spent elsewhere. Unnecessary and unfunded mandates would also serve to increase the cost of rail service and drive more traffic to the highways, where the safety record is far less favorable than it is on the rails.

Below I will discuss several important topics associated with rail safety, discuss ways that railroads are working to advance safety in those areas, and discuss steps that we believe policymakers should take (or not take) to promote rail safety.

Role of Technology

Technology plays a crucial role in rail safety. Much of this technology has been (or is being) developed and/or refined at the Transportation Technology Center, Inc. (TTCI) in Pueblo, Colorado. A wholly-owned subsidiary of the AAR, TTCI is the world's finest rail research facility. Its 48 miles of test tracks, highly sophisticated testing equipment, metallurgy labs, simulators, and other diagnostic tools are used to test track structure, evaluate freight car and locomotive performance, assess component reliability, and much more. The facility is owned by the FRA but has been operated (under a competitively-bid contract with the FRA) by TTCI — which is responsible for all of its operating costs and some of its capital costs — since 1984. The rail industry is pleased that some members of this committee have had the opportunity to see TTCI in person, and I extend an open invitation to others in Congress, especially new members of this committee, to visit the facility when they can.

Just a few of the many technological advances that contribute to improved rail safety are described below. Many of these advances are preventive, designed to help protect freight cars, locomotives, track, and cargo before accidents or damage occurs.

- *Wayside detectors* identify defects on passing rail cars — including overheated bearings and wheels, dragging hoses, deteriorating bearings, cracked axles and wheels, and excessively high and wide loads — before structural failure or other damage occurs. Some of the newest wayside detectors use *machine vision* to perform higher-accuracy inspections through the use of digitized images. Tests at TTCI have revealed that it is possible to inspect wheels of moving trains using *ultrasonic probes*. Further tests of this system are underway, as are tests on ways to better understand and prevent *axle fatigue*.
- *Wheel profile monitors* use lasers and optics to capture images of wheels. The images show if wheel tread or flanges are worn and, consequently, when the wheels need to be removed from service before they become a problem.
- Trackside *acoustic detector systems* use "acoustic signatures" to evaluate the sound of internal bearings to identify those likely to fail in the near term. These systems supplement or replace existing systems that identify bearings already in the process of failing by measuring the heat they generate. This technology allows bearings to be replaced before they overheat and fail.
- Wheels constructed with stronger *micro-alloy metals* that resist damage and withstand higher service loads are being developed.
- Advanced *track geometry cars* use sophisticated electronic and optical instruments to inspect track conditions, including alignment, gauge, and curvature. TTCI is developing an on-board computer system that provides an even more sophisticated analysis capability of track geometry, predicting the response of freight cars to track geometry deviations. This information helps railroads determine track maintenance needs.
- *Improved metallurgy* and *premium fastening systems* have enhanced track stability, reducing the risk of track failure leading to derailments.
- *Rail defect detector cars* are used to detect internal rail flaws. The AAR and the FRA have jointly funded a Rail Defect Test Facility at TTCI that railroads and suppliers use to test improved methods for detecting rail flaws. In 2005, the capabilities of a prototype of the world's first laser-based rail inspection system were tested at TTCI. It is now being demonstrated in revenue service.
- *Ground-penetrating radar* and *terrain conductivity sensors* are being developed that will help identify problems below the ground (such as excessive water penetration and deteriorated ballast) that hinder track stability.
- Major U.S. railroads are deploying *remote control locomotive technology* (RCL) to improve rail safety. RCL allows rail personnel on the ground to operate and control locomotives in rail yards through the use of a hand-held

transmitter that sends signals to a microprocessor on board a locomotive. In a March 2006 report, the FRA found that "[e]mployee injury rates were approximately 20 percent lower for RCL operations than for conventional switching operations..."

- *Electronically-controlled pneumatic (ECP) brakes* are being tested in revenue service. In an ECP braking system, an electronic signal applies the brakes on each car in a train almost instantaneously, resulting in a much shorter stopping distance, reduced slack, and improved train control. (The standard air brake system in use today sends an air pressure signal for cars to brake, slowing the cars one-by-one as the air pressure moves from car to car.) The FRA recently announced its intent to issue a notice of proposed rulemaking later this year to revise the federal brake system safety standards to encourage railroads to invest in and deploy ECP brake technology.

- Because a relatively small percentage of freight cars (so-called "bad actors") can cause an inordinately high percentage of track damage and have a much higher than typical propensity for derailment, TTCI is working on ways to identify poorly performing freight cars as they pass across *truck performance detectors* and *hunting detectors*.[1]

- Much of the research underway regarding track and infrastructure is related to *heavy-axle load* (HAL) service, which entails the use of heavier (and often longer) trains. HAL-related work is underway on rail steels, insulated joints, bridges, welding, specialized track components, and more.

- *Tank car enhancements* have helped railroads reduce the overall rail hazardous materials accident rate by 86 percent since 1980 and by 28 percent since 1990, and railroads are constantly investigating ways to further enhance tank car safety. Hazmat safety will be discussed in much more detail below.

- Advanced *fault detection systems* monitor critical functions on locomotives. State-of-the-art locomotives today can have 20 or more sophisticated micro-processors that measure and check several thousand characteristics of locomotives and their operation.

- Railroads are constantly expanding their use of state-of-the-art global position-ing systems, wireless technologies, and other *communications advances*.

- The *Integrated Railway Remote Information Service (InteRRIS),* an advanced Internet-based data collection system with wide potential applicability, is under development at TTCI. An early project using InteRRIS collects data from wheel impact detector systems (which identify wheel defects by measuring the force generated by wheels on tracks) and detectors that monitor the undercarriage of rail cars (which identify suspension systems that are not performing properly on curves) along railroad rights-of-way. InteRRIS processes the information to produce vehicle condition reports. These allow

[1] In terms of rail cars, "truck" refers to the complete four-wheel assembly that supports the car body. "Hunting" is an instability, more prevalent at higher speeds, that causes a rail car to weave down a track, usually with the flange of the wheel striking the rail.

> equipment which is approaching an unsafe condition to be removed from service and repaired before an accident occurs.

Many of the technological advances mentioned above have been incorporated in the rail industry's Advanced Technology Safety Initiative (ATSI). ATSI has already improved safety. For example, preliminary data indicate that the rate of main track broken rail and broken wheel accidents per million freight train-miles in the 29 months following the October 2004 implementation of ATSI was more than 7 percent below that of the comparable 29-month period prior to implementation.

Train Control Technology

Class I railroads are now developing and testing train control systems that, in certain circumstances, can help prevent accidents by automatically stopping or slowing trains before they encounter a dangerous situation. Through predictive enforcement, train control technologies could significantly reduce the incidence of train accidents caused by human error, especially train collisions and derailments due to excessive speed.

Train control systems are extremely complex. At a minimum, they must include reliable technology to inform dispatchers and operators of a train's precise location; a means to warn operators of actual or potential problems (*e.g.*, excessive speed); and a means to take action, if necessary, independent of the train operator (*e.g.*, stop a train before it reaches the physical limits of its operating authority or allowed speed). Some systems will also include additional features, such as expanding the ability to monitor the position of hand-operated switches. Perhaps the most critical element is sophisticated software capable of accommodating all of the variables associated with rail operations. When successfully implemented, these enhanced train control capabilities will enable trains to operate more safely than trains operate today.

Major railroads are engaged in various ongoing projects to test elements of this new technology. For example, BNSF has done extensive and successful pilot testing of its version of train control (Electronic Train Management System – ETMS) in Illinois and elsewhere. BNSF recently received final approval from the FRA to implement the technology on lines elsewhere on its system. Other train control projects in progress include CSX's Communications-Based Train Management (CBTM) system, Norfolk Southern's Optimized Train Control (OTC) system, and Union Pacific's Communications-Based Train Control (CBTC) system.

Implementing advanced train control technology will require significant capital investments in wireless networks; sophisticated location determination systems; highly reliable software; and digital processors on board locomotives, in dispatching offices and, for some systems, along tracks. Railroads are committed to the development and implementation of train control technology where it makes sense to do so and at a pace that can be justified by available funds.

Hazmat Transport by Rail

Each year, 1.7 to 1.8 million carloads of hazardous materials ("hazmat") are transported by rail in the United States, with two-thirds moving in tank cars. "Toxic inhalation hazards" (TIH) — gases or liquids, such as chlorine and anhydrous ammonia, that are especially hazardous if released — are a subset of hazardous materials and are a major (though not exclusive) focus of hazmat-related rail safety efforts. Each year, railroads transport around 100,000 carloads of TIH, virtually all in tank cars.

Railroads recognize and deeply regret the occurrence of a few tragic accidents involving hazardous materials over the past couple of years. Nevertheless, the rail hazmat safety record is extremely favorable. In 2005 (the most recent year for which data are

available), 99.997 percent of rail hazmat shipments reached their final destination without a release caused by an accident. Railroads reduced hazmat accident rates by 86 percent from 1980 through 2005.

Still, no one disputes that efforts should be made to increase hazmat safety and security where practical. Railroads understand this better than anyone. Today, the federal government, through the railroads' common carrier obligation, requires railroads to transport highly-hazardous materials, whether railroads want to or not. Unlike firms in other industries, including other transportation companies, railroads today have not been able to "just say no" to entering into a business relationship with consumers or manufacturers of these materials.

Absent railroads' common carrier requirement, many railroads would not transport these materials because of the potentially ruinous claims that could arise in the event of a catastrophic accident involving a release of these materials. Indeed, while accidents involving highly-hazardous materials on railroads are exceedingly rare, history demonstrates that railroads can suffer multi-billion dollar judgments, even for accidents where no one gets seriously hurt and the railroads do nothing wrong. Drunk drivers, impatient motorists driving around a grade crossing gate or ignoring a signal at a grade crossing, faulty repairs by the owner of a tank car, and pranksters — not terrorists — have caused incidents that could have been disastrous if they had involved the release of these materials.

Some years ago in New Orleans, a tank car that railroads did not own containing more than 30,000 gallons of liquid butadiene began to leak. Vapor from the butadiene tank car rolled out across a neighborhood until the pilot light of an outdoor gas water heater ignited it. More than 900 people were evacuated, but no serious injuries or fatalities occurred. The National Transportation Safety Board found that the probable cause of the accident was an improper gasket that a chemical company had installed on the tank car. Nevertheless, a state

court jury entered a punitive damages verdict against the railroads involved in the amount of $2.8 billion.

In essence, the transport of highly-hazardous materials is a "bet the business" public service that the government forces railroads to perform.

Railroads face these huge risks for a tiny fraction of their business. In 2005, railroads moved just over 100,000 TIH carloads and nearly 37 million total carloads. Thus, shipments of TIH constituted only about 0.3 percent of all rail carloads. The revenue that highly-hazardous materials generate does not come close to covering the potential liability to railroads associated with this traffic. Moreover, the insurance industry is unwilling to fully insure railroads against the multi-billion dollar risks associated with highly-hazardous shipments. And even though TIH accounts for a tiny fraction of rail carloads, it contributes approximately 50 percent of the rapidly-rising overall cost of railroad insurance.

For all these reasons, the current environment for the rail transportation of highly-hazardous materials, especially TIH, is untenable. If the federal government is going to require railroads to transport highly-hazardous materials, it must address the "bet the company" risk it forces railroads to assume.

Congress can address this inequity in one of at least three ways. First, Congress could create a statutory liability cap for freight railroads similar to the one that applies to Amtrak. Amtrak's total liability for all claims, including punitive damages, from a single accident — regardless of fault — is capped at $200 million. Congress could enact a similar type of cap on the liability a freight railroad would incur from an accident involving highly-hazardous materials, regardless of fault, with the government paying liabilities in excess of the cap.

Second, Congress could enact a Price-Anderson type solution. Price-Anderson limits a company's liability from an incident involving the release of nuclear material (including in

transportation) and provides for a fund, to which all owners of nuclear power plants contribute when an incident occurs, to cover damages exceeding that limit. Under a similar rail proposal, railroads would be liable for a defined amount of damages arising from a rail accident involving highly-hazardous materials. In the event of an accident, damages above that defined amount would be paid from a fund to which producers and end-users of these materials would contribute.

The main purpose of such legislation would be to cap the railroad's liability for claims, while still ensuring compensation for the general public. However, it also seeks to balance the societal need to compensate the injured and damaged with the need for any railroad involved to be able to continue to operate and remain viable.

Both of these proposals leave railroads with substantial liability. Both are also reasonable, given railroads' federally-imposed common carrier obligation and the fact that accidents occur even when railroads operate carefully and safely. Under either proposal, limiting freight railroads' liability from an accident involving highly-hazardous materials would reduce railroads' risk exposure. It would also bring certainty to the insurance market. Hopefully, more insurance companies would again be willing to offer railroads coverage.

Absent these two alternatives, Congress should relieve railroads of their common carrier obligation to haul TIH and other highly-hazardous materials. If Congress will not provide some degree of protection from unlimited potential liability from transporting these materials, then it should not mandate that the railroads' shareholders assume that risk. Rather, railroads should be permitted to decide for themselves whether to accept, and at what price they are willing to accept, such materials for transportation.

What Railroads Are Doing

In the meantime, railroads support prompt, bold actions by all stakeholders to reduce the risks associated with hazmat transport. Railroads themselves are taking the lead:

- In December 2006, an industry committee approved a new standard for chlorine and anhydrous ammonia tank cars that will significantly reduce the risk of a release. (Anhydrous ammonia and chlorine combined account for around 80 percent of rail TIH movements.) The standard will be phased in beginning in 2008.[2]
- As noted earlier, railroads help communities develop and evaluate emergency response plans; provide training for more than 20,000 emergency responders each year through their own efforts and the Transportation Community Awareness and Emergency Response Program (TRANSCAER); and support Operation Respond, a nonprofit institute that develops technological tools and training for emergency response professionals.
- Railroads work closely with chemical manufacturers in the Chemical Transportation Emergency Center (Chemtrec), a 24/7 resource that coordinates and communicates critical information for use by emergency responders in mitigating hazmat incidents.
- Railroads participate in a variety of R&D efforts to enhance tank car and hazmat safety. For example, the Tank Car Safety Research and Test Project (which is funded by railroads, tank car builders, and tank car owners) analyzes accidents involving tank cars to help identify the causes of tank car releases and prevent future occurrences.
- Upon request, railroads provide local emergency response agencies with, at a minimum, a list of the top 25 hazardous materials transported through their communities. The list helps responders prioritize emergency response plans.
- For trains and routes carrying a substantial amount of highly-hazardous materials, railroads utilize special operating procedures to enhance safety.
- In addition to implementing their Terrorism Risk Analysis and Security Management Plan, railroads are working with DHS and the DOT to identify opportunities to reduce exposure to terrorism on rail property.
- Railroads offer hazmat awareness training to all employees who are involved in hazmat transportation. Employees responsible for emergency hazmat response efforts receive far more in-depth training.
- Railroads are pursuing a variety of technological advancements to enhance rail safety, including hazmat safety.

[2] The delay in implementation is due to an FRA request.

- Railroads are working with TIH manufacturers, consumers, and the government to explore the use of coordinated routing arrangements to reduce the mileage and time in transit of TIH movements.

What Hazmat Manufacturers and Consumers Should Do

Manufacturers and consumers of hazardous materials should take a number of steps to help ensure hazmat safety.

First, concerted efforts should be made to encourage development and utilization of "inherently safer technologies," which involve the substitution of less-hazardous materials for highly-hazardous materials, especially TIH, in manufacturing and other processes. As noted in a recent report by the National Research Council (part of the National Academy of Sciences), "the most desirable solution to preventing chemical releases is to reduce or eliminate the hazard where possible, not to control it." Ways this can be achieved include "modifying processes where possible to minimize the amount of hazardous material used" and "[replacing] a hazardous substance with a less hazardous substitute."[3] In a similar vein, in a January 2006 report, the Government Accountability Office (GAO) recommended that the Department of Homeland Security "work with EPA to study the advantages and disadvantages of substituting safer chemicals and processes at some chemical facilities."[4]

One real-world example of product substitution occurred at the Blue Plains wastewater treatment facility just a few miles from the U.S. Capitol. Like many wastewater treatment facilities, Blue Plains used chlorine to disinfect water. Not long after 9/11, the facility switched to sodium hypochlorite, a safer alternative.[5]

[3] *Terrorism and the Chemical Infrastructure: Protecting People and Reducing Vulnerabilities*, National Research Council – Board on Chemical Sciences and Technology, May 2006, p. 106.

[4] *Homeland Security: DHS is Taking Steps to Enhance Security at Chemical Facilities, but Additional Authority is Needed*, Government Accountability Office, January 2006, p. 7.

[5] A March 2007 GAO report lists 23 large wastewater treatment facilities located throughout the country that have recently converted or plan to convert from chlorine gas to a safer alternative. (GAO, *Securing Wastewater*

Railroads recognize that the use of TIH cannot be immediately halted. However, over the medium to long term, product substitution would go a long way in reducing hazmat risks.

Second, manufacturers and receivers of TIH, in conjunction with railroads and the federal government, should continue to explore the use of "coordination projects" to allow TIH consumers to source their needs from closer suppliers. For manufacturers and users, this could involve "swaps." For example, if a chlorine user contracts with a chlorine supplier located 600 miles away, but another supplier is located 300 miles away, the supplier located 600 miles away might agree to allow the closer shipper to supply the user.

Third, hazmat consumers and manufacturers should support efforts aimed at increasing tank car safety and reliability. Not long ago, for example, the FRA, Dow Chemical, Union Pacific, and the Union Tank Car Company announced a collaborative partnership to design and implement a next-generation railroad tank car. (TTCI has been selected to support testing and developments initiatives related to this project.)

What the Government Should Do

The government too has a key role to play. First, as noted earlier, if the government requires railroads to transport highly-hazardous materials (via their common carrier obligation), it must address the "bet the company" risk this obligation forces railroads to assume.

Second, the government should help facilitate the "coordinated routing arrangements" and "coordination projects" mentioned earlier.

Third, the government should encourage the rapid development and use of "inherently safer technologies" to replace TIH and other highly-hazardous materials.

Facilities: Costs of Vulnerability Assessments, Risk Management Plans, and Alternative Disinfection Methods Vary Widely, March 2007.)

Fourth, as explained in more detail below, the government should reject proposals that would allow state or local authorities to ban hazmat movements through their jurisdictions or order railroads to provide local authorities advance notification of hazmat movements through their jurisdictions. The purposes of these types of proposals are protection of the local populace against hazmat incidents, including terrorist attack (especially in perceived "high threat" areas), and enhancing the ability to react more quickly to hazmat incidents. The proposals may be well intended, but the end result of their enactment on a locality-by-locality basis would likely be an *increase* in exposure to hazmat release and *reduced* safety and security.

Hazmat Bans

Banning hazmat movements in individual jurisdictions would not eliminate risks, but instead would shift them from one place to another and from one population to another. In shifting that risk, it could foreclose transportation routes that are optimal in terms of overall safety, security, and efficiency and force railroads to use less direct, less safe routes.

The rail network is not similar to the highway network where there are myriad alternate routes. In the rail industry, rerouting could add hundreds of miles and several days to a hazmat shipment, and those extra miles and days could be on rail infrastructure that is less suitable (for a variety of reasons) to handling hazmat. Additional switching and handling of cars carrying hazmat could be needed, as could additional dwell time in yards. As the Department of Justice and DHS noted in a joint brief opposing a proposed D.C. hazmat ban, the increase in the total miles over which hazmat travels and the increase in total time in transit would "increase their exposure to possible terrorist action," and therefore potentially *reduce* safety and security. (It has been estimated, for example, that a ban on hazmat transport through the District of Columbia would result in some 2 million additional hazmat

car-miles as railroads had to use circuitous alternative routes.) That's why the International Association of Fire Chiefs, among many others, has urged Congress to reject hazmat bans, noting that such bans "ultimately would compromise the safe movement of hazardous materials."

If hazmat were banned in one jurisdiction, other jurisdictions would undoubtedly follow suit. In the wake of so far unsuccessful attempts by the D.C. City Council to ban hazmat movements through Washington, similar efforts are being discussed for Atlanta, Baltimore, Boston, Buffalo, Cleveland, Chicago, Las Vegas, Memphis, Philadelphia, Pittsburgh, and probably other cities too, as well as for all of California.

An integrated, effective national network requires uniform standards that apply nationwide. The clarity and efficiency that uniformity brings would be lost if different localities and routes were subject to widely different rules and standards, or if local and/or state governments could dictate what types of freight could pass through their jurisdictions. The problem is especially acute for railroads, whose network characteristics and limited routing options mean that disruptions in one area can have profound impacts thousands of miles away. These disruptions would negatively affect all rail traffic, not just hazmat traffic.

Of course, it is unlikely that cities and regions that would see increased hazmat traffic because of rerouting elsewhere would welcome the additional hazmat traffic with open arms. For example, in response to a proposal to reroute hazmat traffic from Washington, D.C. through parts of Maryland instead, the Maryland Transportation Secretary said that routes through his state would be "simply unacceptable." A local Maryland official complained that rerouting would make his county "a dumping ground," noting that "we're not interested in playing on those sets of rules."

Finally, as the U.S. Departments of Justice, Transportation, and Homeland Security indicated in comments opposing the D.C. law, hazmat bans also unreasonably burden interstate commerce and interfere with federal regulation of hazmat shipments by rail. Bans would also lead to more reliance on moving hazmat by trucks on busy highways.

Hazmat Prenotification

Hazmat pre-notification to local authorities is problematic for several reasons and may not accomplish the goals of those seeking it.

First, upon request the rail industry already notifies communities of, at a minimum, the top 25 hazardous commodities likely to be transported through their area. In the event of a hazmat incident, train consists are available to emergency responders, and railroads, at TSA request, have agreed to provide movement data on all TIH cars.

Second, pre-notification would vastly increase the accessibility of hazmat location information. Making this information more accessible could increase vulnerability to terrorist attack by magnifying the possibility that the information could fall into the wrong hands.

Third, at any one time, thousands of hazmat carloads are moving by rail throughout the country, constantly leaving one jurisdiction and entering another. The vast majority of these carloads do not — and due to the nature of rail operations, cannot be made to — follow a rigid, predetermined schedule. The sheer quantity and transitory nature of these movements would make a workable pre-notification system extremely difficult and costly to implement, for railroads and local officials alike. That is why the fire chief of Rialto, California, commented, "You'd have to have an army of people to stay current on what's coming through. I think it wouldn't be almost overwhelming. It would be overwhelming." The greater the number of persons to be notified, the greater the difficulty and cost.

Fourth, railroads provide training for hazmat emergency responders in many of the

communities they serve, and they already have well-established, effective procedures in place to assist local authorities in the event of hazmat incidents.

Finally, since railroads already make communities aware of what types of hazardous materials are likely to be transported through their area and since they already provide 24/7 assistance for emergency responders (many of whom railroads have trained), it is not at all clear that information obtained by local authorities through a pre-notification system would improve their ability to respond to hazmat incidents in any meaningful way.

Fatigue in the Rail Industry

It is not in the best interest of railroads to have employees who are too tired to perform their duties properly. That's why railroads have long partnered with their employees to gain a better understanding of fatigue-related issues and find effective, innovative solutions to fatigue-related problems.

Combating fatigue is a shared responsibility. Employers need to provide an environment that allows their employees to obtain necessary rest during off-duty hours, and employees must set aside time when off duty to obtain the rest they need.

Factors that can result in fatigue are multiple, complex, and frequently intertwined. Therefore, efforts to combat fatigue should be based on sound scientific research, not on anecdotes or isolated events. Research demonstrates that flexibility to tailor fatigue management efforts to address local circumstances is key. Significant variations associated with local operations (*e.g.*, types of trains, traffic balance, and geography), local labor agreements, and other factors require customized measures. There is no single, easy solution to fatigue-related problems, especially in an industry that must operate 24 hours per day every day of the year, and a one-size-fits-all government approach is unlikely to succeed as well as cooperative efforts tailored to individual railroads.

The on-duty time of rail employees involved in operating, dispatching, and signaling trains is governed by the Hours of Service Act (HSA). Under the HSA, rail conductors and engineers must go off duty after 12 consecutive hours on the job, and then must have at least 10 consecutive hours off duty. If they go off duty after less than 12 hours on the job, they must have at least 8 consecutive hours off duty. On-duty time starts the minute the employee reports for duty and includes any work that involves engaging in the movement of a train and transportation to a duty assignment. Off-duty time starts when the employee is released from duty, generally at a designated terminal or place of lodging. Dispatchers and signal employees have slightly different hours of service requirements.

Individual railroads are pursuing a variety of fatigue countermeasures, based on what they've found to be most effective for their particular circumstances. Not every countermeasure is appropriate for every railroad, or even for different parts of the same railroad, because the effectiveness of various fatigue countermeasures depends on the circumstances unique to each railroad. Countermeasures that are used by one or more railroads include:

- Increasing the minimum number of hours off duty between shifts.
- Implementing a morning return to work time if off work more than 72 hours.
- Permitting napping by train crew members under limited circumstances (*e.g.*, when a train is expected to remain motionless for a minimum period of time).
- Encouraging sleep disorder screening.
- Improving rest-inducing standards for lodging at away-from-home facilities.
- Devising systems (including web sites, e-mails, pagers, and automated telephone systems) to improve communication between crew callers and employees.

Railroads and unions have also agreed, in some cases, to additional scheduling tools to provide for an improved opportunity for rest. They include:

- Enhanced emphasis on returning crews home rather than lodging them away

from home.

- Providing more predictable calling windows and rest opportunities between shifts.
- Providing for a set number of days off after being available for a given number of days.
- Allowing employees to request an extra rest period when they report off duty.
- Offering fatigue education programs for employees and their families, including individualized coaching to help employees improve their sleep habits. The rail industry is also developing an educational web site designed solely for railroads and rail employees.

The importance of education cannot be overstated, since the value and effectiveness of fatigue-related initiatives depends on the actions of employees while off duty. Many employee actions while off duty (for example, working second jobs) can contribute to fatigue, and railroads have little control over these actions. Employees must make proper choices regarding how they utilize their off-duty time, and education of the entire family is important in encouraging sound decision making.

Railroads support continued research on ways to fight fatigue and will continue to work with rail labor to find effective solutions to fatigue issues. To that end, railroads are amenable to a careful reexamination of the Hours of Service Act's statutory limitations. Changes in the HSA might help reduce fatigue in the rail workplace, but they need to be carefully considered to maximize the probability that they will actually attain the goals they are designed to achieve.

Specifically, railroads do not object to several changes to existing employee hours-of-service regulations. First, railroads do not object to prohibiting train and engine and signal employees from working unless they have had at least ten consecutive hours off duty (up from eight hours under existing law) during the prior 24 hours. Railroads do not object to a requirement that those ten hours should be free of non-emergency phone or page communications from railroads. Second, any employee who works 12 consecutive hours on

duty, and then at least one hour of limbo time[6], would receive at least 14 hours of off-duty time once he or she is released from duty. Third, rail train and engine employees would be subject to a new monthly maximum of 276 hours on duty, and even though limbo time is not on-duty time, it would be included in those 276 hours.[7] Hours beyond this new maximum, which is consistent with permissible hours for other modes of transportation, would be a violation of the HSA. (Today a rail employee could theoretically work 432 hours per month and still be in compliance with the HSA.[8])

Together, these measures not only significantly reduce the maximum on-duty time under current law, but they also strike a balance between the concerns that limbo time contributes to fatigue and the realities of the unpredictability of railroad operations.

The above changes reflect the railroad industry's preferred approach. Failing use of this approach, railroads would support a transfer of the hours of service authority to the FRA, with reliance on FRA's professional judgment.

To enable signal employees to finish their work at far-away sites without having to commute multiple times, railroads and signal employees historically have agreed to modified work schedules — for example, eight consecutive work days (ten hours each day) followed by six consecutive days off. These work schedules are permitted under the HSA, are contained in collective bargaining agreements with signal employees, and result in much less total off-duty travel time for employees working a substantial distance from home.

[6] "Limbo time" refers to the time that crews spend waiting for transportation and the time they spend being transported to where they are released from duty. Limbo time counts as neither time on duty nor time off duty.

[7] KCS and CN do not agree with this position, and Amtrak abstains on the issue.

[8] In fact, though, we know of no cases where this has occurred. The vast majority of railroad workers are on duty each month for periods comparable to most other U.S. workers. Some 83 percent of these rail workers are on duty less than 200 hours per month and more than 95 percent are on duty less than 250 hours per month.

However, schedules like this are not permitted by Federal Motor Carrier Safety Administration (FMCSA) hours-of-service regulations, which apply to the many railroad signal employees who drive commercial vehicles to perform their duties. Several years ago, railroads and rail labor (through the Brotherhood of Railroad Signalmen) petitioned FMCSA to allow the HSA to take precedence over FMCSA's hours of service requirements. To date, FMCSA has refused. This problem can be rectified if it is made clear statutorily that hours of service requirements for rail signal employees under the HSA shall not be subject to hours of service restrictions imposed by another government agency.

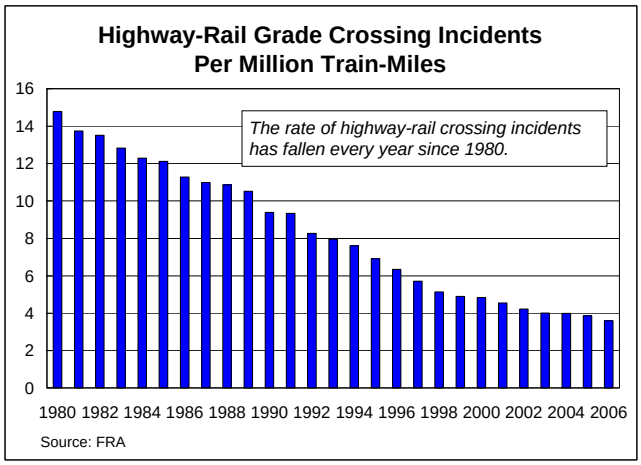
Highway-Rail Grade Crossings and Trespassers

Collisions at grade crossings, along with incidents involving trespassers on railroad rights-of-way, are critical safety problems. In 2006, these two categories accounted for 97 percent of rail-related fatalities. Although these incidents usually arise from factors that are largely outside of railroad control[9], and even though highway-rail crossing warning devices are properly considered motor vehicle warning devices there for the benefit of motorists, not trains, railroads are committed to efforts aimed at further reducing the frequency of crossing and trespasser incidents.

Much success has already been achieved. In 1980, according to FRA data, 10,611 grade crossing collisions resulted in 833 fatalities and 3,890 injuries. According to preliminary data, 2,908 collisions in 2006 (down 73 percent) involved 366 fatalities (down 56 percent) and 1,006 injuries (down 74 percent). The rate of grade-crossing collisions per million train-miles fell 76 percent from 1980 through 2006, and has fallen every year since 1980. And because total exposure (train-miles multiplied by motor vehicle-miles) has risen

[9] A June 2004 report by the U.S. DOT's Office of Inspector General (OIG) confirmed that motorist behavior causes the vast majority of grade crossing accidents. According to the OIG report, "Risky driver behavior or poor judgment accounted for 31,035 or 94 percent of public grade crossing accidents" from 1994-2003. The

sharply over time, the reduction in crossing incidents and casualties per unit of exposure has been even higher.



The Section 130 program, a national highway safety program created by the Highway Safety Act of 1973 and expanded most recently in SAFETEA-LU, is a major reason for the impressive grade crossing safety gains. Under the program, funds are apportioned to states each year for the installation of new active warning devices such as lights and gates, upgrading existing devices, and replacing or improving grade crossing surfaces. The rail industry commends and thanks the members of this committee and others in Congress for their support of this critical program.

Railroads continue to work hard to improve grade-crossing safety, including cooperating with state agencies to install and upgrade grade crossing warning devices and signals (and bearing the cost of maintaining those devices); helping to fund the closure of unneeded or redundant crossings; and supporting the national Operation Lifesaver grade crossing and pedestrian safety program. Railroads spend more than $250 million annually to improve, operate, and maintain grade crossings.

A recent initiative that will result in improved safety is the use of "stop" or "yield" signs along with crossbucks at grade crossings. The National Committee on Uniform Traffic Control Devices has recommended revising the Manual of Uniform Traffic Control Devices (MUTCD) to require the use of stop or yield signs in conjunction with crossbucks to make it clear what is expected of motorists at crossings. The AAR strongly supports amending the

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remaining accidents included such circumstances as vehicles stuck, stalled, or abandoned at crossings.

MUTCD as recommended by the National Committee and follow through on the installation of signs. AAR also supports FRA's recommendation, included in its May 2006 report to Congress on emergency notification systems for grade crossings, that signs comply with the MUTCD recommendations.

The report to Congress also recommended that Class I railroads continue their emergency notification programs, which provide the public with telephone numbers, posted at grade crossings, that can be called in the event of grade-crossing emergencies. AAR's member railroads will continue these programs.

Comprehensive Highway-Rail Grade Crossing Safety Agenda

A comprehensive agenda of engineering, education, and enforcement actions should be implemented so that further improvement in crossing safety can be achieved. Congress and the federal government should adopt and implement the following set of grade crossing safety and trespasser prevention initiatives:

- Adopt a uniform national grade crossing closure process, combined with a freeze on the overall number of grade crossings within each state.
- Require the adoption of highway design standards that ultimately eliminate grade crossings on the National Highway System.
- Redefine "private grade crossings" in such a manner that all grade crossings that are routinely accessible to the general public are eligible for Section 130 funding.
- Fund a research and development program to design effective low-cost active warning systems for grade crossings, and continue evaluations of the effectiveness of more advanced warning device systems such as four quadrant gates.
- Enhance grade crossing traffic law enforcement by requiring grade crossing safety as part of commercial driver's license educational curricula and by maintaining tough grade crossing traffic violation penalties.
- Initiate active enforcement programs with local police agencies — *e.g.*, encourage video enforcement and establish and fund a program for state and local law enforcement officers to serve in FRA's regional offices as liaisons for

grade crossing and trespassing matters with state and local law enforcement organizations.

- Require a minimum set-back or physical safety barrier between active railroad tracks and adjacent parallel trails and paths.
- Continue to fund the national Operation Lifesaver grade crossing and pedestrian safety program.
- Increase federal liability insurance requirements for contractors whose funded projects interface with or impact a railroad.

Trespassers

For many years, significantly more fatalities on railroad property have been associated with trespassers than with highway-rail grade crossing accidents. It is an unfortunate reality that too many people inappropriately use railroad property for short cuts, recreation, or other purposes, sometimes with terrible results. Railroads are engaged in ongoing efforts to educate the public that, for their own safety, they should stay off rail property.

Each year, scores of people tragically choose to end their life by stepping or lying in front of a train. To help prevent the tragedy of suicide, railroads support the Suicide Prevention Action Network (SPAN USA), a charitable organization dedicated to preventing suicide through public education and awareness; community action; and federal, state, and local grassroots advocacy. In addition, through its Railroad Research Foundation, the AAR is researching the prevalence of, and underlying causal factors for, rail-related suicides. Such understanding could facilitate countermeasures to reduce suicides on railroad rights-of-way.

Performance Standards

There are two general approaches to workplace safety regulation: design-based standards and performance standards.

Design-based standards specify the precise characteristics of facilities, equipment, and processes a firm must use in the manufacture or delivery of its product or service. The FRA relies overwhelmingly on design-based standards in regulating rail safety. Design-based

standards are costly for both railroads and the FRA to administer and maintain. They also tend to impede innovation by "locking in" existing designs, technology, and ways of thinking.

The discolored wheel rule provides a classic example of a design-based standard that discourages new technology. This FRA rule required railroads to remove freight car wheels that showed four or more inches of discoloration, on the grounds that such discoloration could portend wheel failure. However, research demonstrated conclusively that discoloration in new heat-treated, curved-plate wheels did not portend failure. Despite this evidence, the FRA took more than a decade to exempt such wheels from the requirement. During this period, railroads had to discard perfectly safe wheels at a cost that reached $100 million per year.

In contrast to design-based standards, *performance-based standards* define the desired result, rather than mandate the precise characteristics that a workplace must exhibit. Performance-based goals focus attention and effort on the outcome, not the method.

Under one type of safety regime based on performance standards, each railroad would have goals for train safety (*e.g.*, accidents per million train-miles) and employee safety (*e.g.*, injuries per 100 employees) as part of a comprehensive risk management plan, based on targets established by the industry and approved by the FRA. If a railroad failed to meet these goals, it would come under increased FRA scrutiny, be required to specify how it planned to correct the problems, and eventually be subject to monetary penalties or even a return to design-based regulation. While some (but not all) of the old regulations would be suspended under a performance-standard regime, the FRA would retain the power to conduct safety audits and to impose emergency directives at any time to protect public safety.

Under safety performance standards, railroads would have the opportunity and incentive to achieve safer operations as efficiently as possible. Performance standards would rely on the superior knowledge of railroads and their employees and would give railroads the

discretion to experiment with new technologies and processes to improve safety. The result would be superior safety performance at a lower cost to railroads and their customers.

Risk-based performance standards represent a reform, not an abandonment, of safety regulation. Except in emergencies or after continued failure to meet targets, the FRA would no longer specify how a railroad would achieve its safety goals. Instead, the FRA would oversee and validate the goal-setting process, ensure that measures and data are accurate, and impose any necessary sanctions.

Railroads have proposed a performance standard pilot project focused on locomotive inspections. In addition, the standards the industry committee issued in December 2006 for anhydrous ammonia and chlorine tank cars incorporate performance standards. The committee standards mandate tank thickness, head shields, and top-fittings protection. However, tank car owners or builders can petition the committee to accept a tank car that, in lieu of the specified tank thickness and head shields, achieves the same safety improvement.

Conclusion

Thank you for the opportunity to testify on this critical topic. The railroad industry is committed to working with its employees, Congress, the FRA, its customers, and others to ensure that rail safety continues to improve.