Testimony of Joseph H. Boardman, Administrator
Federal Railroad Administration,
U.S. Department of Transportation,
before the Subcommittee on Railroads
of the Committee on Transportation and Infrastructure,
U.S. House of Representatives
July 21, 2005

Mr. Chairman and members of the Subcommittee, I appreciate this opportunity to appear before you, on behalf of Secretary Mineta, to discuss highway-rail grade crossing safety. Since June 1 of this year, my responsibility has been to lead the Federal Railroad Administration (FRA), the agency charged with administering the Nation's railroad safety laws. As you know, FRA's safety mission is simple: we help prevent fatalities, injuries, and property damage related to railroad operations, and we support the Department of Homeland Security's efforts to enhance the security of those operations. FRA has jurisdiction over all areas of railroad safety. FRA's inspection force of 441, supplemented by 155 State inspectors from 30 States, inspect railroad operations for compliance with Federal laws and regulations, and we use a variety of enforcement tools to encourage compliance. (See Appendix I to this testimony.) We help educate the public about safety at highway-rail grade crossings and the dangers of trespassing on railroad property. FRA investigates selected rail accidents, working closely with the National Transportation Safety Board (NTSB) where that agency also elects to investigate, and we closely track the railroad industry's safety performance. FRA also sponsors collaborative research with the railroad industry to introduce innovative technologies to improve railroad safety.

Since you have asked me to focus on safety at highway-rail grade crossings, let me emphasize at the outset that FRA is here today representing the U.S. Department of Transportation's (DOT's) five surface transportation modes, which share responsibility for

highway-rail crossing safety. It is the privilege and responsibility of FRA, the Federal Highway Administration (FHWA), the Federal Motor Carrier Safety Administration (FMCSA), the National Highway Traffic Safety Administration (NHTSA), and the Federal Transit Administration (FTA) to work with State and local governments, railroads, rail employees, Operation Lifesaver, Inc. (a private, non-profit, educational organization), and others to reduce deaths and injuries at highway-rail crossings. We are supported by the Volpe National Transportation Systems Center of the Department's Research and Innovative Technology Administration as well as a community of scholars outside the government who help us devise better approaches to crossing safety. Although I will concentrate today on FRA's role in this process, none of us can do this work alone or without a proper regard for the role of others.

Rail Safety Overall and FRA's Rail Safety Action Plan

Highway-rail grade crossing safety has improved dramatically since the mid-1970s, as the statistics I will soon present amply demonstrate. FRA recognizes, however, that serious railroad accidents earlier this year have raised concerns on this Committee and in the public about crossing safety in particular or rail safety in general. Despite the impression one might get from news accounts of recent accidents, the number and rate of train accidents, total deaths arising from rail operations, employee fatalities and injuries, and hazardous materials releases--all have plummeted over approximately the last two and a half decades, as shown in rail safety statistics summarized at Appendix II to this testimony. Grade crossing safety is another very positive part of that bright picture.

Nevertheless, recent serious train accidents, such as at Graniteville, South Carolina, this past January, have highlighted specific issues that need prompt government and industry attention.

As explained in FRA's Rail Safety Action Plan, which is Appendix III to my testimony, FRA is aggressively moving to address these critical issues and to heighten the awareness of the entire industry on the need to demonstrate positive change in these areas. Our major areas of emphasis are train accidents caused by track defects and human error, which together account for more than 70 percent of reportable train accidents. The plan explains how FRA will do the following: address the leading causes of train accidents caused by human error; improve the safety of hazardous materials shipments; explore ways to minimize the dangers of crew fatigue; deploy state-of-the-art techniques to detect track defects; and focus FRA inspectors on safety trouble spots through improved use of safety data and the agency's National Inspection Plan.

Crossing Accident Statistics

Grade crossing safety has shown great improvement overall, as shown by the statistical record. In 1975, the first year that FRA began collecting crossing collision data using a definition of the reportable event comparable to that used today, there were 12,126 crossing collisions that resulted in 917 deaths. (Note that, in FRA's terminology, most of these collisions are reported as "incidents" because they do not involve enough damage to railroad property–currently a minimum of $6,700–to qualify as "train accidents.") By 2004, according to preliminary figures, the number of collisions had fallen to 3,050 and the number of deaths had fallen to 368. As these numbers show, crossing safety has improved markedly since 1975 and despite an increase in exposure due to increased rail and highway traffic. In fact, from 1975 to 2004, crossing collisions have declined almost 75 percent, and fatalities also decreased by almost 60 percent, while the frequency of crossing collisions per million train-miles has dropped 75 percent. (For a shorter-term look at crossing accidents statistics, please see the charts at

Appendix IV of this testimony, which graphically illustrate the overall reduction in the number and rate of crossing collisions and of related fatalities over the decade from 1995 through 2004.)

In 2004, there was a disturbing increase in deaths as the result of crossing incidents, from 332 in 2003 to 368 in 2004, although the rate of such incidents continued to improve. Our analysis shows that the increase in deaths was primarily attributable to deaths of pedestrians at crossings, which indicates that pedestrians at crossings should be an area of emphasis. According to preliminary data for the first four months of 2005, however, the trends are very positive, with crossing deaths down by 5.6 percent, crossing incidents down by 8.1 percent, and the incident rate down by 10 percent as compared to the same period in 2004.

As to the cause or causes of crossing incidents, FRA's mandatory reporting system for highway-rail grade crossing collisions does not call for assignment of a "cause code" unless the event also qualifies as a train accident. However, if the data elements required by FRA's reporting guide are accurately entered on the crossing incident form alone, the cause or causes of the event should be evident in the vast majority of cases. For instance, if the motorist drove through or around a lowered gate, on the one hand, or an active warning system failed to provide a warning, on the other, the genesis of the event is normally quite clear. If that information is not enough to identify the cause(s), the reporting guide notes that the narrative portion of the form "should include any information that increases our knowledge of the reasons why the accident occurred and its consequences." The great majority of crossing accidents result from risky behavior or poor judgment by the highway user. The DOT Office of the Inspector General audit report dated June 16, 2004, on FRA's crossing safety program states that "[i]n 2003, we found that 2,368 or 93 percent of the 2,543 public grade crossing accidents and 242 or 83 percent of the

293 fatalities occurred because drivers engaged in risky behavior or exercised poor judgment at crossings with active and passive warnings."

Crossing Safety Initiatives

Improvement in crossing safety has resulted from a variety of sources, including public investment in crossing warning devices and greater awareness of the risks present at crossings on the part of highway users. As I indicated earlier, these advances were brought about by collaborative efforts of railroads, rail employees, FRA, State and local governments, our partners at DOT (FHWA, FMCSA, FTA, and NHTSA), Operation Lifesaver, and many other non-governmental groups.

Improvement has not come easily, as collisions at grade crossings are a very complex issue with a number of different factors to be considered. The two different types of transportation vehicles involved, trains and motor vehicles, are very diverse. Trains are heavy and operate on fixed rails. The weight difference between a train and a motor vehicle not only makes it virtually impossible for the train to stop in time to avoid a collision, but it also greatly increases the severity of the collision if one does occur. Motor vehicles are very light, when compared to a train, and are extremely maneuverable. Drivers are very adept at using this maneuverability in order to avoid delays in traffic or hazards they encounter and become accustomed to using these maneuvers in their daily driving routines. Too often this maneuverability is used around grade crossings, resulting in risky behavior by drivers. Even in corridors that have a great deal of train traffic, the likelihood of a driver seeing a train at a crossing is relatively rare; therefore, most drivers do not have a lot of experience upon which to rely when they encounter a train. Almost 50 percent of collisions at public crossings occur at

crossings that have properly functioning automatic warning devices consisting of either flashing lights or flashing lights with gates. Clearly the installation of these devices is not the sole solution. It is evident that there is not a simple solution, but much progress has been made. I would like to highlight a few of the initiatives that FRA has undertaken that have contributed to the improvement in the safety at the Nation's grade crossings.

DOT's 1994 Crossing Safety Action Plan

In June 1994, FRA, along with all the other DOT surface transportation modal agencies, jointly issued the "Rail-Highway Crossing Safety Action Plan." This action plan provided 55 specific items in six major initiative areas that were to guide the Department's efforts to reduce the number of crossing collisions and related fatalities by 50 percent within the next ten years. Federal incentive payments for crossing consolidations and increased Federal penalties against commercial motor vehicle drivers that violate traffic laws at crossings are just two of the strategies identified in the plan that have been adopted successfully. The DOT Office of Inspector General's June 16, 2004, audit report on the highway-rail grade crossing safety program recognized the advances made, concluding that "the Department and states made substantial progress in improving grade crossing safety and came close to meeting the plan's goal."

New Regulations

FRA has issued several regulations that have improved crossing safety. In 1991, FRA put regulations in effect that require railroads to report all activation failures of crossing warning systems to the FRA within 15 days of the occurrence so that FRA may investigate the circumstances and cause of the activation failures. The regulations also require telephonic

notification to FRA of within 24 hours of any impact between on-track equipment and a highway user that involved an activation failure. Beginning in 1995, regulations have been in place that govern the maintenance, inspection, and testing of automatic warning devices at grade crossings and require railroads to respond to credible reports of any malfunctions, of automatic warning systems at highway-rail grade crossings. The regulations are designed to improve the reliability of these important traffic control devices.

Since the end of 1997, the lead locomotive of trains traveling faster than 20 mph over a public crossing must be equipped with two operating auxiliary lights. These lights and the headlights of the locomotive form a triangular pattern that makes the approaching train more detectable to motorists. FRA safety inspectors make routine inspections to monitor compliance with all these regulations and take enforcement action as necessary.

On January 3, 2005, FRA published a final rule requiring reflective materials on locomotives and freight cars to enhance further a motorist's ability to detect a train at night and during adverse weather conditions. The reflectorization rule will become effective when recent petitions for reconsideration are resolved.

On April 27, 2005, FRA published a final rule entitled "Use of Locomotive Horns at Highway-Rail Grade Crossings." This regulation, which was required by statute, promotes crossing safety by requiring that the locomotive horn be sounded by trains as they are approaching public grade crossings. It also provides a mechanism that permits local public authorities to create quiet zones where train horns are not routinely sounded if there is not significant risk at the crossing or if additional safety measures are employed to reduce risk to

appropriate levels. The rule also provides special consideration for communities that had pre-existing quiet zones.

FRA has worked closely with local communities and State agencies to explain the requirements of the rule and to help public authorities to comply with the quiet zone requirements. The train horn rule became effective on June 24, and over 220 quiet-zone corridors have been established in accordance with the rule. Most of the plans that FRA has seen for the establishment of new quiet zones have included significant improvements to crossing safety. FRA looks forward to working with local governments to establish quiet zones that not only improve the quality of life by silencing the train horn but also enhance safety by preventing grade crossing accidents.

On June 30, 2005, FRA published a final rule requiring locomotive event recorders to be hardened to prevent the loss of data from exposure to fire, impact shock, fluid immersion, and other potential damage following a train accident. It also requires that while continuing to capture data such as speed, application of the automatic air brakes, throttle position, and cab signal indications, the event recorders will now also include data elements like horn control activation, cruise control functions, and safety critical train control operating directives sent to the engineer's onboard display that require mandatory compliance. The rule will ensure that investigators have more of the type of information they need available to them to determine why a train accident occurred, thereby helping to prevent future ones. Further, the rule significantly extends the time period that railroads must maintain data stored on the event recorder following a train accident to one-year from the present requirement of 30 days, to allow FRA or NTSB more flexibility to review the data if no immediate investigation is undertaken.

Finally, the old-style event recorder using magnetic tape will be phased out over a four-year period and replaced with a new electronic model.Additional Staff

Since 1994, FRA has added 16 full-time grade crossing managers to its field forces. These managers perform many different tasks to improve safety. They participate in grade crossing corridor diagnostic reviews, where they help to provide expertise to local officials in the determination of appropriate traffic control devices to install at the crossings. The crossing managers work closely with State agencies responsible for crossing safety to find new ways to improve crossing safety. This year an FRA crossing manager worked closely with the Louisiana Department of Transportation and Development in the creation a State-specific crossing safety action plan. They also investigate and help to resolve complaints about hazardous crossings and other safety concerns.

DOT's 2004 Crossing Safety Action Plan

Despite the improvements that have been achieved, FRA is well aware of the fact that there is still much to be accomplished. In 2004, grade crossing incidents accounted for about 41 percent of the 899 deaths related to railroad operations. This is a significant number, and FRA's Crossing Safety and Trespass Prevention Program is committed to reducing that number. Like many other safety efforts, our approach utilizes *education*, *enforcement*, and *engineering*. Here are some of the additional efforts that we are making to continue to reduce the number and severity of these tragic incidents.

Last summer the Department published "The Secretary's Action Plan--Highway-Rail Crossing Safety and Trespass Prevention." This action plan, like its predecessor, provides a road map for the Department's efforts to improve crossing safety for the coming years. As directed in

the Congressional conference report (H. Rept. 108-10) accompanying the fiscal year 2003 appropriations act for FRA, the plan outlines specific steps to be taken by the Department. The plan was made in consultation with stakeholders from both the public and private sectors and, in particular, reflects advice from the Office of Inspector General audit. The following nine initiatives were included in the Department's 2004 Grade Crossing Action Plan; an example is provided for each initiative:

1. Establish Responsibility for Safety at Private Crossings - In the first quarter of calendar year 2006, FRA will initiate a series of public workshops, during which FRA will encourage discussion and gather information on the current state of safety at private grade crossings and identify known safety needs.

2. Advance Engineering Standards and New Technology - In the first quarter of 2006, FRA will begin an analysis to determine the scope of the problems that may be caused by power failures at railroad preempted highway signalized intersections.

3. Expand Educational Outreach - DOT will develop Internet-based, interactive grade crossing safety educational tools for use by commercial vehicle drivers.

4. Energize Enforcement - By the end of 2005, FRA will publish a report on the trespass prevention initiative at Pittsford, New York, that uses video surveillance, so that other communities may learn from this project.

5. Close Unneeded Crossings - FRA will concentrate on presenting "best practices" and successful initiatives in providing technical assistance and support to States and local governments in the consolidation of grade crossings.

6. Improve Data, Analysis, and Research - FRA will examine current accident data to identify those States that have a significant frequency of multiple collisions at grade crossings that have previously been equipped with lights and gates and encourage those States to identify strategies to improve safety at those crossings.

7. Complete Deployment of Emergency Notification Systems - FRA will work to facilitate (a) the implementation of systems permitting members of the public to provide emergency notification to railroads of problems at particular crossings (e.g., a motor vehicle immobilized on the tracks) and (b) the posting of signs compliant with the Manual on Uniform Traffic Control Devices at railroad crossings on all railroads.

8. Issue Safety Standards - FRA will respond to petitions for reconsideration of its January 2005 a final rule that would require retro-reflective material on the sides of freight rolling stock (freight cars and locomotives) to enhance the visibility of trains to motorists, in order to reduce the number of accidents at highway-rail grade crossings.

9. Evaluate Current Safety Efforts for Effectiveness - The Department will undertake a comprehensive evaluation effort to determine the effectiveness of the principal grade crossing collision mitigations to ensure that "best practices" are identified, and that emphasis and support for these programs and projects are maintained.

Education

Operation Lifesaver (which receives funds from FRA and FHWA) and similar educational initiatives have spread the message to motorists about the importance of driver behavior in helping to prevent crossing collisions. FRA field forces are actively engaged in educational efforts in communities, schools, and workplaces across the Nation. For example,

with our partners at FMCSA, Operation Lifesaver, and trucking associations, FRA helps educate drivers of commercial vehicles about the importance of highway-rail grade crossing safety. FRA's crossing safety activities in my home State of New York before I came to FRA provide some concrete examples. There, FRA and the New York State Operation Lifesaver have gained the cooperation of the New York Motor Truck Association to include a variety of highway-rail crossing safety awareness materials in its newsletter, which reaches over 1,000 recipients each week. FRA and FMCSA have participated with New York Motor Truck Association in a series of regulatory and safety seminars held in Buffalo, Rochester, Syracuse, Albany, and Long Island, and FRA participated in the Association's annual State-wide conference in July 2004.

FRA has collaborated with Chautauqua County, New York Operation Lifesaver, and the rail industry to develop a county-wide safety initiative that will enlist law enforcement agencies, educational institutions, the press, and the business community to deliver a comprehensive community safety program, including rail/public safety. Similarly, FRA actively participated in establishing Ballston Spa Central School District's annual community rail/public safety initiative, which reaches approximately 4,500 students each year. FRA safety specialists also have participated in safety programs at the Erie County and New York State fairs, a Boy Scout Railroading Safety Merit Badge program on Long Island, safety fairs conducted in cooperation with Amtrak and Metro-North Commuter Railroad, rail/public safety programs conducted for law enforcement highway traffic safety officers in Rochester and Buffalo, and community meetings addressing crossing safety in North Tonawanda. Similar cooperative efforts to improve safety are taking place across the Nation.

In the Pacific Northwest, an FRA motive power and equipment inspector who was making an inspection at an intermodal facility discussed the importance of crossing safety with a local safety officer from Swift Transportation, Inc. This discussion led to the inspector's being invited to give an Operation Lifesaver presentation to the drivers at the local terminal. After observing the quality of the training and realizing the importance of crossing safety, the safety officer suggested to the corporate office that the FRA's inspector's talk would benefit the entire company. A customized training video was created, with the cooperation of Washington State Operation Lifesaver, that is now a part of the training for every new driver at Swift. Over 15,000 new drivers each year now receive training about how to drive a commercial motor vehicle across a grade crossing safely.

Education and public outreach are very important components to improving safety. FRA, the Illinois Commerce Commission, and several communities in Illinois have been engaged in a demonstration project to try to quantify the effectiveness of such programs. This project utilized video cameras at eight crossings to monitor driver behavior before, during, and after programmatic education and outreach efforts. Preliminary results indicate that such programs can reduce certain types of crossing violations by up to 70 percent.

Encouraging Enforcement of State and Local Traffic Laws

FRA has long partnered with State and local law enforcement authorities, both police officers and judges, to encourage their enforcement of highway laws related to crossings. For example, we worked with Operation Lifesaver, railroads, and State law enforcement training officials to produce a training video aimed specifically at patrol officers to enhance their understanding of crossing safety. The Grade Crossing Collision Investigation Course, promoted

by FRA and used extensively by the Operation Lifesaver State committees, has proven to be very effective in providing tools to enable officers to be safe while investigating crossing collisions and in highlighting the importance of the role of the law enforcement community in highway-rail grade crossing safety. Since 2003, over 600 training courses have been held, and almost 13,000 law enforcement officers have received this important training.

Supporting and Conducting Crossing Accident Investigations

Because the overwhelming majority of crossing accidents are the result of risky behavior or poor judgment by a highway user, the responsibility for investigating grade crossing collisions falls primarily upon the local or State law enforcement agency. These agencies are best positioned to provide the quick response necessary in such situations and have the requisite expertise in investigating highway accidents. In most circumstances, FRA does not investigate grade crossing collisions. FRA's inspectors have a wide range of duties, including inspection of railroad track, equipment, signals, and operations; enforcement of the Federal safety laws; complaint investigation; education of the railroad industry and public on safety issues; and accident investigation. For most crossing collisions, the causes are related to driver behavior, and sending FRA inspectors lacking expertise in such matters to investigate them would divert those inspectors from other activities more likely to save lives.

However, FRA does selectively investigate a number of crossing collisions each year. FRA tries to investigate crossing collisions where its expertise in railroading is likely to be beneficial and where the event seems likely to yield important information related to regulatory compliance, improving regulations, or developing effective preventive actions within the agency's area of expertise. In 2004 and through the first five months of 2005, FRA headquarters

has assigned FRA personnel to investigate 19 crossing collisions, and during the same period FRA's regional offices have assigned FRA personnel to investigate some additional crossing collisions.

FRA investigates crossing collisions that involve major public interest (e.g., three or more fatalities), railroad responsibilities (e.g., possible improper maintenance of grade crossing warning systems or improper response to credible reports of grade crossing warning system malfunction), or impacts on railroad safety (i.e., train crew or rail passenger fatalities). FRA recently revised its instructions for headquarters-assigned investigations to clarify the parameters that will trigger an investigation and to underscore that FRA will investigate all crossing collisions involving a credible allegation that an active warning device failed to provide the required warning. Where there are credible allegations of such warning device problems, FRA's signal and train control inspectors provide unique expertise in the investigative setting. Earlier this year, FRA distributed to railroads and affected employee organizations a summary of its conclusions from three recent crossing incidents (one that had not yet led to a collision) that involved either questionable actions by a train crew or potentially unsafe design of crossing circuitry. In these situations, FRA's investigations produced findings that may contribute to prevention of similar incidents.

On May 2, 2005, FRA published a safety advisory in the Federal Register to help clarify the responsibilities of various entities involved crossing safety and the investigation of grade crossing collisions. The advisory reminds railroads that they are required by FRA regulations to report fatal crossing accidents promptly and all crossing incidents within 30 days after the month in which they occur, and to maintain the records from locomotive event recorders for every

incident that is reportable to FRA, which includes grade crossing collisions. The data must be retained for 30 days and made available to FRA and NTSB investigators. FRA performed a random sampling of six railroads in March of this year and found no incidents of noncompliance. (Effective October 1, 2005, railroads will be required to retain this data for a full year.) The safety advisory also informs local law enforcement agencies that FRA is ready to assist with crossing collision investigations, including obtaining and interpreting the data from event recorders. As stated in the Rail Safety Action Plan, FRA intends to send out this advisory through national law enforcement organizations and through contacts with local agencies. FRA has not received any requests from law enforcement agencies for assistance during this year.

Engineering

The engineering phase of FRA's crossing safety program involves encouraging the installation and upgrading of warning devices at crossings and the elimination of grade crossings altogether. With funding from FRA's sister agency, FHWA, pursuant to section 130 of title 23, United States Code (Section 130), States have installed and upgraded crossing warning devices, especially at the most hazardous crossings. This Section 130 funding has provided about $155 million each year for States to use to improve public highway-rail grade crossings. At least half of the Section 130 funds must be used for installing protective devices at crossings. FHWA has defined the following grade crossing improvements as "protective devices": installation of standard signs and pavement markings; installation or replacement of active warning devices; upgrading active warning devices, including track circuit improvements and interconnections with highway traffic signals; crossing illumination; crossing surface improvements; and general site improvements. The other half may also be spent on protective devices or on other approved

safety improvements such as grade separations or crossing closures. FHWA estimates that Section 130 funding has been responsible for construction of approximately 30,000 active crossing warning devices. Of course, over one-half of the Nation's public crossings still have only passive warning devices, and grade crossing collisions continue to occur when motorists fail to comply with fully operational active warning devices. FRA encourages the use of additional safety measures, like traffic channelization devices at conventional gated crossings, which would enhance the effectiveness of the warning devices by making it more difficult to drive around lowered gates. Four-quadrant gate systems also are very effective in the prevention of gate violations by motorists. These additional safety measures are currently available, but their use is not widespread. We also work closely with railroads and local communities to identify crossings suitable for closure because they are either redundant or no longer needed.

FRA's Offer to Work with All Partners

As discussed in FRA's 2005 Rail Safety Action Plan, FRA is committed to working with States to improve crossing safety. In response to a recommendation from the Inspector General to encourage States to develop State-specific crossing action plans, FRA has worked closely with Louisiana to draft such a plan, as previously mentioned, which should be finalized next month. Several elements of this plan have already been set in motion, including a new State law that will give the Louisiana Department of Transportation and Development the authority to close unsafe crossings. FRA will provide the Louisiana action plan as a model to other States and encourage the development of similar plans.

FRA has also worked closely with North Carolina Department of Transportation in the development of its "Sealed Corridor" approach to crossing safety. Using a variety of safety

treatments, including traffic channelization devices at gated crossings, four-quadrant gates, and crossing closures, North Carolina has successfully treated more than 200 crossings on its high-speed rail corridor. The State has also closed 64 public and private crossings.

Just yesterday FRA announced a grant of $250,000 to the Metrolink commuter railroad in California. The grant is being given to fund a study of the development of a sealed corridor along Metrolink's routes near Los Angeles.

In Ohio the program for reducing hazards in high-speed rail corridors authorized in section 1103(c) of title 23, United States Code (the Section 1103(c) program) provided funding to upgrade the circuitry and install constant warning time devices at Westwood Avenue, Toledo, a crossing with seven railroad tracks at the entrance to Norfolk Southern Railway Company's Toledo Airline Yard. This project was completed last year.

In Minnesota, the Section 1103(c) program is funding the construction of an overpass in Dresbach Township that will close all five crossings on the high-speed corridor once construction is finished. The overpass is built, and the road construction is needed to complete the project. In the same State, FRA has cooperated with C3 Trans System LLC, Minnesota Department of Transportation (MNDOT) Guidestar Program, and the Twin Cities and Western Railroad (TC&W), in the development of a low-cost grade crossing active warning system for the past five years. The system uses a transmitter mounted on the locomotive to activate solar-powered flashing lights that have been mounted on the existing mast holding the cross bucks. Two-way communications between the locomotive and the crossing provide the engineer with a positive signal that the crossing system has been activated. The goal is that the design and construction cost of this system would be only one-tenth of the current system cost per crossing.

Testing in "shadow mode" at 30 crossings with eight locomotives was completed in 2004, and the first six crossings to go on line became active on June 23, 2005. MNDOT will conduct an evaluation of the warning systems to determine their safety performance, operational performance, cost, reliability, and maintenance implications.

Enforcement of FRA Regulations Related to Crossing Safety

We take our responsibility to enforce the grade crossing regulations very seriously. FRA and State safety inspectors inspect crossing warning devices and audit the maintenance and inspection records of railroads to monitor compliance with regulations concerning automatic warning devices. Last year, FRA assessed civil penalties totaling $229,000 for violations of these regulations and collected $240,000 in settlements of civil penalty claims for (a different group of) violations of these regulations. This year FRA assessed civil penalties of $298,000 against CSX Transportation, Inc., for violations of these regulations that contributed to a fatal crossing accident at Henrietta, New York, and the railroad has settled the case for the full amount of the original penalty. Beginning in 2006, FRA will have in place a National Inspection Plan for the Signal and Train Control discipline. This plan will make better use of data when determining where inspections of grade crossing warning devices are to be made.

FRA's regulations require that the railroads report in writing or electronically every crossing collision to FRA within 30 days following the month in which the collision occurred. FRA performs periodic audits of railroad records to check for compliance. We also post these reports on our Web site so that they are available to the public. This publication of the reports provides a means for State agencies and others to verify that crossing collisions have in fact been reported. There have been instances when State agencies have contacted FRA to notify us that

they have records of crossing collisions that are not on our Web site. We then investigate the events and take appropriate enforcement action. FRA strongly encourages States to double-check their records and welcomes information that may be useful in making sure that all crossing collisions are reported.

Effective on May 1, 2003, FRA's regulations require an immediate telephonic report of any crossing collision that results in one or more fatalities. These calls must be made to the U.S. Coast Guard's National Response Center, which in turn will notify FRA. FRA will then determine whether the initial reports of the incident meet the criteria necessary for an investigation. There have been some situations where railroads have failed to comply with this requirement. We have instituted an audit procedure to verify that a telephonic report was made for every fatal grade crossing collision reported to us in writing. Once again we will take enforcement action as necessary to ensure compliance.

Engineering with New Technologies

Developing and demonstrating new technology are also a part of FRA's strategy for improving grade crossing safety. In some instances, crossing collisions have occurred, with tragic results, because of a train crew's failure to follow railroad instructions to stop the train short of the crossing and to have a crewmember "flag the crossing" (wave a warning flag instructing motorists to stop while the train is passing through the crossing) if the crossing's automatic warning device is out of service. Accidents like these remind us that current methods of train operation rely heavily on crew compliance with oral or written mandatory directives or signal indications to remain safe. The railroad operating environment is often unforgiving; failure to comply is unsafe. To compensate for these human failures and improve the safety,

security, and efficiency of freight, intercity passenger, and commuter rail service, FRA is supporting deployment of advanced signal and train control technology. These new systems, which we refer to as Positive Train Control (PTC), will use various technologies to determine the precise location of trains and to intervene, in the event of a human lapse, and automatically control train movements when necessary to prevent a collision. In the future, PTC will integrate a wide array of hazard sensors to protect train movements and will provide the platform for more cost-effective warning of motorists at highway-rail crossings. With the ability to enforce temporary speed restrictions, PTC will also ensure crew compliance with stop-and-flag requirements related to out-of-service warning devices at highway-rail crossings.

FRA has teamed with Amtrak and the State of Michigan to install an Incremental Train Control System (ITCS) on Amtrak's Michigan line to support proposed higher passenger train operating speeds on the Detroit-to-Chicago corridor. This project includes high-speed grade crossing signal pre-starts and integration of remote health monitoring for crossing signals (so that the train is slowed if proper warning to motorists will not be provided). The system has been in revenue service operation since January 2002 for both passenger and freight trains.

FRA also joined the Association of American Railroads (AAR) and the State of Illinois in developing a high-speed PTC project for the St. Louis-Chicago corridor. The project has now been integrated into the North American Joint PTC Program, a consortium consisting of representatives from FRA, State governments, the AAR, and Class I railroads, whose purpose is to promote development of standards for PTC. This project also includes the installation of four-quadrant gates at 69 crossings on the route.

FRA recently provided grants to North Carolina DOT and Norfolk Southern Railway

Company to explore methods that would allow a greater utilization of the data that are collected by digital video cameras that are installed on locomotives. Several of the Class I railroads are equipping their fleets of freight locomotive with these cameras. It is hoped that this technology will assist in determining what, if any, human factors are associated with grade crossing crashes and trespasser incidents. The second objective is to measure the performance and effectiveness of the grade crossing improvements made along the North Carolina "Sealed Corridor" and to identify locations where modifications may be necessary. From the data analysis, recommendations will be made to improve grade crossing and trespasser safety mitigation measures.

Light emitting diodes (LEDs) are being used in flashing lights units at crossings. These LEDs provide a brighter signal and are more vandal-proof than incandescent lights. Train detection circuitry has improved and is more reliable than ever before. The use of remote health monitoring is being used more often at grade crossings; this enables the crossing warning device to constantly check its circuitry to make sure that is operational and will send an alert to the railroad if it is not.

Conclusion

Advancing highway-rail crossing safety is an important responsibility shared by many– highway users, State highway officials, local law enforcement, railroads and railroad employees, several DOT agencies, including FRA, and Congress, which provides a significant portion of the funding used to make improvements in crossing safety. Together, we are making headway in saving lives at crossings; however, continuous innovation and continued investment are important to counteract the growth of highway and rail traffic and to secure the safety of the

general public at crossings, whether they be pedestrians, drivers, bus riders, or locomotive crews. This hearing will help focus attention on how all of us who share this responsibility can contribute to continued improvement in this important intermodal safety issue.

APPENDIX I: State Inspectors by Inspector Discipline

APPENDIX II

The Railroad Industry's Safety Record

The railroad industry's overall safety record is very positive, and most safety trends are moving in the right direction. While not even a single death or injury is acceptable, progress is continually being made in the effort to improve railroad safety. This improvement is demonstrated by an analysis of FRA's database of railroad reports of accidents and incidents that have occurred over the roughly two and a half decades from 1978 through 2004. (The low point of rail safety in recent decades was 1978, and 2004 is the last complete year for which data--though preliminary--are available.) Between 1978 and 2004, the total number of rail-related accidents and incidents has fallen from 90,653 to 13,997, an all-time low representing a decline of 85 percent. Between 1978 and 2004, total rail-related fatalities have declined from 1,646 to 899, the second-lowest number on record and a reduction of 45 percent. From 1978 to 2004, total employee cases (fatal and nonfatal) have dropped from 65,183 to 5,847, the record low; this represents a decline of 91 percent. In the same period, total employee deaths have fallen from 122 in 1978 to 25 in 2004, a decrease of 80 percent.

Contributing to this generally improving safety record has been a 71-percent decline in train accidents since 1978 (a total of 3,179 train accidents in 2004 compared to 10,991 in 1978), even though rail traffic has increased. (Total train-miles were up by 2.3 percent from 1978 to 2004.) In addition, the year 2004 saw only 29 train accidents, out of the 3,179 reported, in which a hazardous material was released, with a total of only 47 hazardous materials cars releasing some amount of product, despite 1.7 million movements of hazardous materials by rail.

In other words, over the last approximately two and a half decades, the number and rate of train accidents, total deaths arising from rail operations, employee fatalities and injuries, and hazardous materials releases--all have fallen dramatically. In most categories, these improvements have been most rapid in the 1980s, and tapered off in the late 1990s. Causes of the improvements have included a much more profitable economic climate for freight railroads following deregulation in 1980 under the Staggers Act (which led to substantially greater investment in plant and equipment), enhanced safety awareness and safety program implementation on the part of railroads and their employees, and FRA's safety monitoring and standard setting (most of FRA's safety rules were issued during this period). In addition, rail remains an extremely safe mode of transportation for passengers. Since the year 1978, more than 10 billion passengers have traveled by rail, based on reports filed with FRA each month. The number of rail passengers has steadily increased over the years, and in 2004 there were more than 534 million. No rail passengers were killed in train collisions and derailments in 2004, but one rail passenger was killed in a highway-rail grade crossing accident in 2004. On a passenger-mile basis, with an average about 15.5 billion passenger-miles per year, rail travel is about as safe as scheduled airlines and intercity bus transportation and is far safer than private motor vehicle travel. Rail passenger accidents–while always to be avoided–have a very high survival rate.

As indicated previously, not all of the major safety indicators are positive. In recent years, rail trespasser deaths have replaced grade crossing fatalities as the largest category of deaths associated with railroading. (Highway-rail and trespassing deaths account for 95 percent of the 899 total rail-related deaths in 2004.) In 2004, a total of 483 persons died while on

railroad property without authorization; fortunately, this was a decrease of nearly four percent from the previous year. Further, significant train accidents continue to occur, and the train accident rate has not declined at an acceptable pace in recent years and actually rose slightly in 2003 and 2004 compared to that in 2002. The causes of train accidents are generally grouped into five categories: human factors; track and structures; equipment; signal and train control; and miscellaneous. The great majority of train accidents are caused by track and human factors, and human factor accidents are growing in number. In recent years, most of the serious events involving train collisions or derailments resulting in release of hazardous material, or harm to rail passengers, have resulted from human factor or track causes. Accordingly, as discussed in FRA's new Rail Safety Action Plan (at Appendix III), human factors and track are the major target areas for improving the train accident rate.

Appendix III: FRA's Rail Safety Action Plan

Appendix IV: Statistics on Grade Crossing Accidents, 1995-2004