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RAILROAD SAFETY

HEARING

BEFORE THE

SUBCOMMITTEE ON SURFACE TRANSPORTATION AND MERCHANT MARINE

OF THE

COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION UNITED STATES SENATE

ONE HUNDRED SEVENTH CONGRESS

SECOND SESSION

JULY 10, 2002

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ONE HUNDRED SEVENTH CONGRESS

SECOND SESSION

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CONTENTS

	Page
Hearing held July 10, 2002	1
Statement of Senator Breaux	1
Statement of Senator Hollings	2
Statement of Senator McCain	4
Prepared statement	6

WITNESSES

Blakey, Hon. Marion C., Chairman, National Transportation Safety Board	7
Prepared statement	10
Gunn, David, President and CEO, National Railroad Passenger Corporation	39
Prepared statement	42
Hahs, Don M., International President, Brotherhood of Locomotive Engineers	55
Prepared statement	57
Hamberger, Edward, President and CEO, Association of American Railroads; accompanied by: C.E. Dettmann, Senior Executive Vice President for Safety and Operations	44
Prepared statement	45
Rutter, Hon. Allan, Administrator, Federal Railroad Administration	13
Prepared statement	14

APPENDIX

Cleland, Hon. Max, U.S. Senator from Georgia, prepared statement	71
Response to written questions submitted by Hon. John McCain to:	
Marion C. Blakey	73
Don M. Hahs	87
Edward Hamberger	71
Allan Rutter	75

RAILROAD SAFETY

WEDNESDAY, JULY 10, 2002,

U.S. SENATE,
SUBCOMMITTEE ON SURFACE TRANSPORTATION AND MERCHANT MARINE,
COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION,
Washington, DC.

The Subcommittee met, pursuant to notice, at 9:30 a.m. in room SR–253, Russell Senate Office Building, Hon. John B. Breaux, Chairman of the Subcommittee, presiding.

OPENING STATEMENT OF HON. JOHN B. BREAUX, U.S. SENATOR FROM LOUISIANA

Senator BREAUX. The Subcommittee will come to order. Good morning everyone. Thanks to our witnesses for being with us. I am very pleased that we could assemble here this morning for this hearing on the issue of the safety of the Nation's railroads. We have called this hearing because of a rash of severe train accidents over the past several months. It seemed that we were becoming frequent witnesses to these accidents on the rails where they involve a freight train, Amtrak passenger train, like the Auto Train, or a commuter train like the Metrolink in Los Angeles. We also offer our condolences to the accident victims and their families that have been affected by these tragedies.

We all know the railroad industry provides a vital transportation service in the United States. Our freight railroad system plays a significant role in our economy by efficiently moving goods around the country. Our national passenger rail system provides a vital link for passengers and serves as a foundation for the expansion of the high speed rail service across the entire country. Its importance is clearly deserving of attention, and to that end I am very pleased to be a cosponsor of S. 1991, legislation by our distinguished Chairman which provides long term solutions for Amtrak and also develops our passenger rail infrastructure.

With the sprawling network of infrastructure, railroads operate, of course, in every State. This presents challenges for addressing safety risks. My state of Louisiana, this year alone through April, has seen 24 reportable train accidents involving over $1 million in damages, two injuries, and a total of 63 cars carrying hazardous material and 18 of these derailed or were damaged.

Luckily, none of these accidents resulted in fatalities or the release of any hazardous materials. Louisiana has seen its share over the years of severe rail accidents. In May of the year 2000 in Eunice, Louisiana, a Union Pacific freight train derailed causing ex-

plosions, fire, the release of hazardous materials, evacuation of about 3,500 families, people, from the surrounding area and over $35 million in damages.

NTSB found that the accident was caused because of the UP's ineffective track inspection procedures and inadequate management oversight, but other recent incidents have involved even more tragic loss of life and raised even more persistent and widespread safety issues. Today we seek not answers, necessarily, to any one of these tragic accidents, but what can be done to prevent tragedies in the future as we in the Congress consider a greater role for passenger rail in our transportation system.

I have every confidence that the causes of these unfortunate events will be uncovered and corrective actions taken. I wish to further explore what is being done to solve any underlying safety issues, and what can be done by federal and state authorities and the private sector to increase the safety of all of our Nation's rail carriers.

Specifically today the witnesses will address the technologies and practices available now, and in the near future, to improve rail safety. For example, I understand that rail projects involving positive train control technology are developing. I would like to hear a progress report on this effort. In addition, the Committee should hear the witness' views on whether the President's safety measures are adequate to ensure rail safety, especially where both passenger and freight trains share the same track.

I also look forward to the testimony of Hon. Allan Rutter, the Federal Railroad Administrator, and Hon. Marion Blakey, who is chairman of the National Transportation Safety Board. I hope they will enlighten us on the status of several of the rail safety rulemakings that may prevent some of these accidents and limit fatalities in others.

Finally, we will listen with interest to representatives from the industry, what are the views of the American Association of Railroads, the Brotherhood of Locomotive Engineers, and Amtrak on current track inspection requirements and practices. How do these groups view the promise for existing technology, like the positive train controls to prevent accidents.

All of these witnesses today have the knowledge and experience about the industry and about these safety efforts, so we look forward to hearing from our distinguished witnesses, and we recognize the distinguished Chairman of the full Committee, Senator Hollings, for any comments he may have.

STATEMENT OF HON. ERNEST F. HOLLINGS, U.S. SENATOR FROM SOUTH CAROLINA

The CHAIRMAN. Mr. Chairman, thank you very much for this very important hearing on safety. Number 1, I noted that my counterpart, the distinguished Chairman on the House side, Don Young, has a letter to the editor in the morning Washington Post asking for reforms and a complete cleaning out of Amtrak. I do not mind cleaning out all except the Chairman himself, or whatever his title is, Mr. Gunn. David Gunn is the best reform we have had in my 31 years around here.

With respect to Amtrak, if they needed any cleaning out, we ought to clean out ourselves. What we have done is played games for the last 31 years. The best example is already this year we have appropriated $28.5 billion for airlines alone, and in the entire 31 years we never have appropriated $28 billion for rail service, and particularly passenger service, so it brings into focus exactly what we have been doing. We do not mind spending $400 billion for highways, or $28½ billion in this particular year that we have appropriated for the airlines. Now we are going to have auditing, we have got to have consultants to find out where we are going to have savings, we have got to do this.

We have got to look at ourselves and realize that you have got to make a command decision as to whether or not you want a passenger rail service in this country, and this Committee by a vote of 20 to 3, Mr. Chairman, has voted categorically in a bipartisan fashion to have in the United States a modern high speed rail service, and along that line we have got to go immediately to the tinkering again by the administration which, kicking and screaming, has yet to come into the room of passenger rail service in this country.

Specifically on safety, only 9 months after 9/11, we appropriated some moneys for safety, and just for the tunnels going in to New York. They only gave us the money last week, 9 months later. Otherwise, on the loans, they are playing a game. They are trying to dismantle long term, long haul service, passenger service, which is needed, as conditions for the loans, plus a bunch of other silly conditions. Like they are really concerned that this thing is being operated right. What they are trying to do is put it out of business.

They have yet to come up with a long term Amtrak bill, or passenger service bill to submit to the Congress. We have been talking and talking. We have had three hearings, we have had a vote in this Committee, and we continue to work on it then along comes the Secretary of Transportation like the perils of Pauline, like they are saving it. They are going to give them a $100 million loan, they are going to keep them alive.

Well, the Congress is going to keep them alive. They are going to have to veto it, because we are going to put the money in it. We are putting the money in there, and we are going for this 12/21, our bill on high speed long term passenger service in the United States. If anyone has any criticisms I wish they would give them to us, because it is not supposed to be a perfect bill, but it does include the reforms.

It is not that we had not thought this Committee studied and we put in the provisions with respect to financing. We require a 5-year financial plan. We put in the independent auditor that they are trying to get down to corporate America. We put that in our particular bill, S. 1991. Otherwise we put in a $1-1/2 billion for the high speed corridor development.

I ask unanimous consent that we include this sort of cheat sheet that summarizes all the reforms. The administration would give to the American public the idea that we have got an indolent Congress that has not thought of reforming Amtrak. We have thought of all the reforms. We have taken the best advice from the witnesses here appearing this morning. We determined to move for-

ward at some time this year and not save Amtrak, but by gosh, institute a passenger service in this United States of America.

Like I say, by way of emphasis, I think the best reform that we have had so far, Mr. Chairman, is Mr. David Gunn, the newly appointed head of Amtrak. I think he knows way more about all of this train operation, and he is not going to be fudging like all the other particular executives we have had over the 30-years that yeah, we can get by, yeah, we're going to do it. They knew that it was impossible, but politically they did not want to tell us, and they did not tell us, and that is why we are to blame as much as Amtrak is to blame. The Congress on both sides of the aisle, and that has got to stop. We have got to go to work.

Thank you.

Senator BREAUX. Thank you, Mr. Chairman. For equal time, Senator McCain.

STATEMENT OF HON. JOHN McCAIN, U.S. SENATOR FROM ARIZONA

Senator MCCAIN. Thank you, Mr. Chairman. If blame is to be apportioned, the record is very clear on my continued skepticism about the previous Amtrak presidents, the skepticism about and even strong disagreements with the statements that were made before this committee by Mr. Worthington, and my predictions that proved out to be exactly true that, despite our, quote, bail-outs, close quotes, that Amtrak would be back again in deep financial trouble, so there is blame to be apportioned.

I will let the record show that this Member—this Member was very clear as to the difficulties that Amtrak was suffering, and the delusions and illusions that were perpetrated on a glidepath. Just a few months ago, the Amtrak executives assured this committee they were on the glidepath to financial stability. This statement demonstrates one of the most outrageous lacks of candor that I have observed in 20 years here in the Congress.

I hope that Mr. Rutter and Amtrak's new president, Mr. Gunn, will discuss Amtrak's current financial situation. Prior to the 4th of July recess there was an uproar over whether Amtrak would have been shut down by now. The administration provided a $100 million loan and is expected to seek additional assistance from Congress to keep Amtrak running through September. I hope Administrator Rutter will be able to tell us specifically what the administration is requesting of Congress. That was very unclear in the last hearing appearance by Secretary of Transportation Mineta.

I hope that he and Mr. Gunn will also further explain to us what the emergency financial needs are, and how they define what needs were an emergency. I am also interested in knowing what additional reforms the administration recommends to be required as a condition of Amtrak receiving additional financial assistance.

There is no question in my mind that Amtrak will get the money it needs to keep operating. After 31 years of subsidies that were to have ended by 1973, there is no reason to think Amtrak will not get what it is seeking, but why Amtrak waited until the eleventh hour to notify Congress of its desperate financial situation is beyond me. I can understand how Mr. Gunn could not have known much sooner, because he had only recently joined Amtrak, but

what about the rest of Amtrak's management and, more importantly, what about Amtrak's board of directors?

I believe an important first step toward reform is to call for the resignation of the members of the Amtrak reform board who were appointed to oversee Amtrak and meet the directives of the Amtrak Reform and Accountability Act. After all, these individuals are responsible for Amtrak's repeated claims that it was on a glide path to self-sufficiency, claims that, according to Mr. Gunn, were fictional.

It is the same board that paid a high-powered consulting firm over $10 million for an analysis of where Amtrak should be headed, and how Amtrak could cut expenses. That report never saw the light of day, probably because the consultant recommended that Amtrak become a private company, and prepare for competition, similar to the recommendations made by the bipartisan Amtrak Reform Council.

Another point here. The Amtrak Reform Council made recommendations. None of those recommendations that I know of were included in the legislation that passed through this Committee. I will attempt on the floor to get some of those recommendations of the Amtrak Reform Council incorporated in any further bail-out. Considering the attention being paid to actions taken by the boards of directors of private corporations, we should be especially concerned about the Amtrak board, whose decisions affect a corporation that receives millions of dollars annually from the American taxpayer. I believe these board members have failed to fulfill their fiduciary obligation and should be asked to step down, just as those overseeing private corporations have recently been asked to do.

On June 28, I joined 13 other members in writing President Bush to recommend five short-term reforms as a condition of any additional Amtrak funding. I will be interested in hearing both Administrator Rutter's and Mr. Gunn's views on these modest proposals, which include:

Transmitting all funds to the Department of Transportation to administer and distribute to Amtrak only under formal grant agreements. Such agreements tighten the purse strings and ensure that funds are spent as intended.

Prohibiting Amtrak from incurring any new debt obligations unless approved by the DOT Secretary or the Director of the Office of Management and Budget.

Directing Amtrak to prepare a contingency plan approved by DOT to ensure that commuter and freight operations on the Northeast Corridor as well as commuter service operated by Amtrak under contract continue, even if Amtrak ceases intercity operations.

Directing DOT to establish a commission similar in structure to a Base Realignment and Closure Commission to evaluate Amtrak's route structure and develop standards to determine what routes should be operated, and requiring Amtrak in an effort to protect the investment of the American taxpayers to provide to the Federal Government any available non-leveraged collateral in exchange for Federal assistance.

If Amtrak's latest financial crisis is not a wake-up call for reform, I do not know what it is. It is truly a sad commentary on Amtrak's management and board that during the 5 years and $6.2 billion in Federal and State subsidies Amtrak has received since its last reauthorization, the company is once again on the verge of bankruptcy, despite repeated assurances that it would be free of operating subsidies once that authorization period ended.

One additional point. The money that we use to subsidize the airlines and highways come directly from user fees, from those that use the airlines and highways. Rail passenger uses comprises 1/2 of 1 percent of all traffic passengers in America. We are asking this money for Amtrak to be taken out of general revenues. I think it is a significantly different situation. I am 'convinced that without major reform in another 5 years or even sooner, we are certain to face yet another Amtrak bail-out. I will not give up hope that Congress will embrace real change for our Nation's national passenger rail service.

Thank you, Mr. Chairman.

[The prepared statement of Sen. McCain follows:]

PREPARED STATEMENT OF HON. JOHN MCCAIN, U.S. SENATOR FROM ARIZONA

Thank you, Mr. Chairman. This hearing is certainly timely. In a span of less than 3 months, there have been 13 serious rail accidents involving Amtrak, commuter authorities, and several freight railroads, which have resulted in eight fatalities, over 500 injuries, and the evacuation of all 2,200 residents of Potterville, Michigan. In addition to these accidents, there was a hazardous materials release last January in Minot, North Dakota, that killed one and seriously injured 13 others. And it was just a year ago that a CSX train derailed in the Howard Street Tunnel in Baltimore, leaking hydrochloric acid, lighting several carloads of paper on fire and disrupting the city for several days.

While the recent spate of accidents is alarming, statistically, rail safety has made great progress. Historically, there appears to have been a fairly strong correlation between safety in the freight rail industry and the industry's financial stability. Since the Staggers Rail Act of 1980 partially deregulated the railroads, the rate of train accidents has declined 64%, the rate of employee injuries and fatalities has fallen 57%, and grade crossing fatalities have been reduced by 50%. I am concerned that the recent accidents could be a sign of the end to these positive trends.

I am interested in hearing from today's witnesses and learning their views on what needs to be done to better protect the safety and security of the both rail employees and passengers, as well as the general public. I also recognize that yesterday, the Administration submitted its proposal to reauthorize our federal rail safety programs and hope that our Committee will be able to work together to move this important reauthorization during the limited time remaining this session.

In addition to focusing our attention on railroad safety, today's hearing also provides us the opportunity to question Administrator Rutter and Amtrak's new president, David Gunn, about Amtrak's current financial situation—an opportunity we would not otherwise have been given. Prior to the July 4th recess, there was an uproar over whether Amtrak would have been shut down by now. The Administration provided a $100 million loan and is expected to seek additional assistance from Congress to keep Amtrak running through September.

I hope Administrator Rutter will be able to tell us specifically what the Administration is requesting of Congress. I also hope he and Mr. Gunn will further explain to us what the emergency financial needs are, and how they defined what needs were an emergency. I am also interested in knowing what additional reforms the Administration recommends be required as a condition of Amtrak receiving additional financial assistance.

There is no question in my mind that Amtrak will get the money it needs to keep operating. Certainly after 31 years of subsidies that were to have ended by 1973, there is no reason to think Amtrak won't get what it is seeking. But why Amtrak waited until the 11th hour to notify Congress of its desperate financial situation is beyond me. I can understand how Mr. Gunn couldn't have known much sooner be-

cause he had only recently joined Amtrak. But what about the rest of Amtrak's management and, more importantly, what about the Amtrak Board of Directors?

I believe an important first step toward reform is to call for the resignation of the members of the Amtrak Reform Board who were appointed to oversee Amtrak and meet the directives of the Amtrak Reform and Accountability Act. After all, these individuals are responsible for Amtrak's repeated claims that it was on a glidepath to self-sufficiency—claims that, according to Mr. Gunn, were "fictional." It is the same Board that paid a high-powered consulting firm over $10 million for an analysis of where Amtrak should be headed and how Amtrak could cut expenses. Yet, that report never saw the light of day, probably because the consultant recommended that Amtrak become a private company and prepare for competition, similar to the recommendations made by the bipartisan Amtrak Reform Council.

Considering the attention being paid to actions taken by the boards of directors of private corporations, we should be especially concerned about the Amtrak Board whose decisions affect a corporation that receives millions of dollars annually from the American taxpayers. Again, I believe these Board members have failed to fulfill their fiduciary obligations and should be asked to step down, just as those overseeing private corporations have recently been asked to do.

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- Prohibiting Amtrak from incurring any new debt obligations unless approved by the DOT Secretary or the Director of the Office of Management and Budget;
- Directing Amtrak to prepare a contingency plan, approved by DOT, to ensure that commuter and freight operations on the Northeast Corridor, as well as commuter services operated by Amtrak under contract, continue even if Amtrak ceases intercity operations;
- Directing DOT to establish a commission, similar in structure to a Base Realignment and Closure Commission, to evaluate Amtrak's route structure and develop standards to determine what routes should be operated; and,
- Requiring Amtrak, in an effort to protect the investment of the American taxpayers, to provide to the federal government any available non-leveraged collateral in exchange for federal assistance.

If Amtrak's latest financial crisis isn't a wake-up call for reform, I don't know what is. It is truly a sad commentary on Amtrak's management and Board that during the five years and $6.2 billion in federal and state subsidies Amtrak has received since its last reauthorization, the company is once again on the verge of bankruptcy despite repeated assurances that it would be free of operating subsidies once that authorization period ended.

I am convinced that without major reform, in another five years—or even sooner—we are certain to face yet another Amtrak bailout. I will not give up hope that Congress will embrace real change for our nation's passenger rail system.

Senator BREAUX. Thank you very much, Senator McCain.

Welcome to both of our witnesses, Ms. Blakey and Mr. Rutter. We have your prepared statements, and Mr. Rutter, I notice you have a 39-minute statement. Ms. Blakey, yours is shorter, but nevertheless we would like you to try and summarize your statement so we can proceed to questions.

Ms. Blakey, welcome.

STATEMENT OF HON. MARION C. BLAKEY, CHAIRMAN, NATIONAL TRANSPORTATION SAFETY BOARD

Ms. BLAKEY. Thank you very much, and I am delighted to be here.

Chairman Breaux, Senator Hollings, Senator McCain, it is a pleasure to appear before you. As you know, the National Transportation Safety Board's most important products are our safety

recommendations. It is a proven fact that our safety recommendations do save lives but unfortunately many of the recommendations we have made in the rail area have yet to be implemented. For this reason, I recently began meeting with all of the administrators of the Department of Transportation, Administrator Rutter included. Our goal has been to close satisfactorily many of the open recommendations from the NTSB, including as many as possible of those on our most wanted list of safety recommendations.

As many of you know, the most wanted list contains those issues that we believe are most urgent and have the greatest potential to advance safety. Over the last few weeks, I have had what I consider to be very successful meetings with a number of the administrators. We are coming to look at the recommendations in two groups, those that we can close satisfactorily immediately, based upon progress to date, and those that may take 2 years. When you look back over this list of recommendations, many of them have been open for a decade, and so what we are trying to do is speed up this progress.

Today, I would like to talk with you, therefore, about two specific areas in the rail arena that we think are most critical from the standpoint of safety improvements. These are, in addition to grade crossings, which I will touch on, but in the interest of brevity I will go to those two specifics. We think these are the ones that have the greatest potential to save lives. Here we are talking about one that I know you are familiar with, positive train control, and here we have important recommendations on the books which we would like to ask for your support to achieve those goals.

Positive train control has been on our most wanted list of safety improvements since 1990. As you know, PTC systems, as they are known, prevent train collisions by automatically stopping a train when the engineer does not comply with a missed signal. Simply put, they have the ability to eliminate almost all rail collisions.

Let me tell you briefly about a recent collision that could have been prevented had PTC been in place. This is one I am personally very familiar with, because it is one that I was the Board Member on the scene of the accident. As you all may recall, on April 23, in Placentia, California, Burlington Northern's Santa Fe freight train collided head on with a Metrolink commuter train. It resulted in the deaths of two Metrolink commuters.

The NTSB learned that the BNSF train had failed to comply with two signals, first a yellow, then a red. The train was traveling between 40 and 50 miles an hour when it passed the red signal very fast, and it was not until the engineer saw the Metrolink train ahead that he actually applied the emergency brakes.

Sadly, this kind of accident, and this accident specifically, could have been prevented with PTC. A PTC system would have stopped the train after it passed the yellow signal. It would have definitely had the train completely braked by the time it reached that red signal.

This is not to say that progress has not been made. Since the mid-1990's, more than $267 million has been spent on PTC systems by both industry and Government, and we are encouraged by the efforts of some of the railroads to implement these systems. In addition, we recognize that the FRA has a commitment and a real

support of the goal of implementing PTC as soon as possible. In fact, in 2001 the FRA published an NPRM to facilitate the development and implementation of the national differential global positioning satellite system, which is critical in making the system possible, and this is real progress.

Mr. Chairman, the Safety Board recognizes the complexities and the costs that are involved in implementing positive train control. We are sensitive to these issues, but we genuinely believe much more can be done, and it can be done more quickly. We have got to increase the current pace of development. After 12 years, it is still on the most wanted list, and there is no industry-wide plan for the integration of these kinds of systems. In fact, the rail lines that primarily serve freight carriers remain largely unprotected. We ask for your support, therefore, to help us encourage industry to speed up this pace.

The other important issue I wanted to touch on briefly is track safety. Over the years, the Board has issued numerous recommendations to address track safety. In fact, according to the FRA, of the 2,962 reported train accidents in 2001, 1,115 were track-related. Two recent track-related accidents being investigated by the board occurred in Crescent City, Florida, and in Minot, North Dakota.

On April 18, an Amtrak Auto Train en route from Sanford, Florida, to Lorton, Virginia, derailed in Crescent City, Florida, killing four passengers. Shortly after the accident, the engineer told Safety Board investigators that he saw a misaligned track, but he saw it only approximately 60 feet in front of him and the train derailed shortly thereafter. Sixty feet is not enough to be able to stop a train. We are currently investigating many aspects of this accident, but one of the big focuses, of course, is track conditions.

The other recent accident, and many of you will remember this, was on January 18 in Minot, North Dakota, when a Canadian Pacific railway freight train that was pulling tank cars filled with anhydrous ammonia derailed. Approximately 250,000 gallons of ammonia were released, killing one person in Minot. The release created a massive vapor cloud 5 miles long, 2-1/2 miles wide, 350 feet high.

The Minot fire chief estimated that the vapor cloud affected 15,000 people, or 40 percent of the population of the city. We were very lucky in this case—it happened in the middle of the night. Most of the population was indoors and they were asleep, therefore we did not have the kind of effect on the population we would have at just about any other time of day.

We are currently investigating this accident and we will hold hearings next Monday and Tuesday, the 15th and 16th, to address the issues involved in that particular accident. But to go to the broad point, what can we do to prevent these types of accidents, our most recent safety recommendation was issued in April following the Board's investigation of a train derailment in Eunice, Louisiana.

As a result of this accident, we have asked the FRA to consider the volume of hazardous material shipments made over tracks when they are looking at the question of the frequency and type of inspections that they order. We think this is critical. I am con-

fident that by addressing this issue and other issues that I mentioned today we can greatly reduce the number of injuries and the number of fatalities on our Nation's rail system.

Thank you, and I would be happy to respond to questions.

[The prepared statement of Ms. Blakey follows:]

PREPARED STATEMENT OF HON. MARION C. BLAKEY, CHAIRMAN, NATIONAL TRANSPORTATION SAFETY BOARD

Good morning Chairman Breaux and Members of the Subcommittee. It is a pleasure to represent the National Transportation Safety Board (NTSB) before you today on the subject of railroad safety.

According to the Association of American Railroads, there are more than 600 freight railroads operating today in Canada, Mexico, and the United States. North American railroads operate over 173,000 miles of track, and generate $42 billion in annual revenues. In the United States, railroads account for more than 40 percent of all freight transportation.

Federal Railroad Administration (FRA) data show that in 1996, there were 2,443 reportable train accidents, and in 2001 there were 2,962 reportable train accidents. Although there was a marked decrease in railroad fatalities in 1999—from 1,008 to 932—this figure has risen to 966 in 2001. Mr. Chairman, as railroad traffic and the amount of hazardous materials being transported continue to increase, the railroad industry and government must remain vigilant with their efforts to prevent accidents.

I want today to discuss three areas of concern to the Board—positive train control, track safety, and grade crossing safety.

The NTSB's safety recommendations are the most important results of its accident investigations. It is clear that adoption of our safety recommendations saves lives. We are working closely with the FRA to increase its current recommendation acceptance rate of about 71.5%, and to that end I met with Administrator Rutter on June 7, 2002, to discuss which of the open safety recommendations can and should be accomplished within the next two years. I believe the meeting was productive and will result in accomplishing several open safety recommendations.

Since its creation in 1990, the Safety Board's Most Wanted list has highlighted safety recommendation issues that have the greatest potential to save lives. Positive train control (PTC) systems have been on the list since 1990. PTC systems prevent train collisions by automatically interceding in the operation of a train when the engineer does not comply with a required signal indication. In past accidents, engineers failed to comply with signals because of poor visibility, distractions, or other human performance failures, such as fatigue. As you are aware, problems associated with human fatigue is also a Most Wanted issue.

Over the years, the Safety Board has repeatedly investigated railroad collisions that could have been prevented by a PTC system. Since 1969, when the Safety Board made its first safety recommendation related to PTC systems, the Board has investigated 15 relevant major railroad accidents related to PTC and completed a safety study—resulting in 36 positive train control-related safety recommendations. Without the installation of PTC systems, preventable collision accidents will continue to occur and will continue to place railroad employees and the traveling public at risk.

The most recent safety recommendation regarding PTC was issued in May 2001 as a result of the collision that occurred January 17, 1999, near Bryan, Ohio. Since that safety recommendation was issued, the NTSB has launched investigators to six railroad collision accidents that may have been prevented had PTC systems been in place, including a recent head-on collision that occurred between a freight train and a commuter train in Placentia, California, on April 23, 2002.

As you may recall, at 8:20 a.m. a Burlington Northern Santa Fe (BNSF) freight train collided with a Metrolink commuter train, resulting in the fatal injuries of two Metrolink passengers. The BNSF train was traveling between 40 and 50 miles per hour when the engineer saw the Metrolink commuter train on the track put the train into emergency braking. Despite application of the train's emergency brakes, the BNSF train struck the Metrolink commuter train at 20 miles per hours, pushing it backward more than 300 feet and derailing its front passenger car.

Since the mid 1990s, more than 267 million dollars have been spent on PTC systems by industry and government. The Safety Board is encouraged by the efforts of some railroads to implement PTC systems that have a collision avoidance compo-

nent, and several projects have advanced past the developmental phase into revenue service. For instance:

- Amtrak continues installation of the Advanced Civil Speed Enforcement System along the high-density Northeast Corridor (with 198 miles completed);
- Amtrak is also installing the Incremental Train Control System on the Michigan line between Chicago and Detroit (with 76 miles completed);
- New Jersey Transit continues installation of the Advanced Speed Enforcement System (with plans to install it on all 540 miles system-wide); and
- The Illinois Department of Transportation, the FRA, the AAR, and the Union Pacific are working to install a PTC system on the Chicago to St. Louis Corridor.

In September 1999, the FRA's Railroad Safety Advisory Committee (RSAC) completed a report titled "Implementation of Positive Train Control Systems. The report noted that:

- Approximately 40 to 60 accidents could be prevented by PTC each year;
- Approximately 7 fatalities and 55 injuries could be prevented annually by PTC;
- Testing has shown that PTC is successful; and
- PTC systems can be designed to provide interoperability among many systems.

As a result of the RSAC report, in August 2001, the FRA published a notice of proposed rulemaking (NPRM) to facilitate development and implementation of the National Differential Global Positioning System (GPS) Network. Previous PTC testing established that a properly augmented GPS can provide a viable, low cost train-borne location determination system for PTC.

Mr. Chairman, the Safety Board acknowledges progress in this area, and we recognize the complexities and costs involved in the implementation of PTC on the Nation's railroads. However, the safety Board is not satisfied with the current pace of development and implementation of collision avoidance technologies. It is important to remember that not only are we seeking to eliminate the fatalities and injuries in these collisions, but the devastating financial and environmental costs of hazardous materials accidents. To date, no plan for industry-wide integration has been developed. And, while progress has been particularly slow along rail lines that primarily serve freight carriers, even those lines with significant passenger traffic remain largely unprotected today—some 12 years after PTC was first placed on the Safety Board's Most Wanted list.

Track safety is also an issue that has been addressed by the Board in numerous railroad accidents. According to the FRA, of the 2,962 reportable train accidents in 2001, 1,115 were track-related. Mr. Chairman, when Mr. Bob Chipkevich, Director of the Board's Office of Railroad, Pipeline, and Hazardous Materials Investigations, testified before this Subcommittee in March 2001, he commended the FRA for its efforts to revise track standards. He expressed concern, however, that the rule to revise track safety standards did not mandate the use of advanced track inspection technology, such as track geometry cars. We believe data identified by track geometry cars would enable a track inspector to more effectively identify track anomalies, monitor those track segments with potential defects, and monitor the results of track work performed.

The most recent railroad accident report adopted by the Board in which track conditions and inspection were issues resulted from an accident that occurred May 27, 2000, in Eunice, Louisiana. The derailment of a Union Pacific (UP) freight train resulted in explosions, fire, the release of hazardous materials, and the evacuation of about 3,500 people from the surrounding area. Total damages exceeded $35 million.

After the derailment, a thorough inspection of the jointed rail territory revealed track conditions that did not meet the requirements for the type of track used. Furthermore, it was more than likely that these track conditions existed for some time. The FRA's records for the 5 years preceding the accident documented a history of weak tie conditions and cracked joint bars in the jointed rail section at the accident location. During a walking inspection in 1996, the FRA discovered 36 broken joint bars and identified several areas with weak crossties. FRA inspectors inspected the track in January 1999 and discovered areas with insufficient crossties and defective joint bars. Although an FRA inspector found that the situation had been corrected in a follow-up inspection in March 1999, he found defective tie conditions at 11 locations and 2 cracked joint bars in other areas.

During the Safety Board's investigation, Union Pacific advised NTSB staff that the track at the scene was inspected daily. A post-accident inspection by the Safety Board's investigative team, however, revealed numerous track defects—including

403 cracked and broken splice bars. Since this accident Union Pacific has implemented a more stringent inspection program for jointed track.

Track issues are also being examined as part of our investigations of recent train derailments that occurred on January 18, 2002, in Minot, North Dakota, and on April 18, 2002, at Crescent City, Florida.

The derailment and release of hazardous materials in Minot, North Dakota, occurred on January 18, 2002, at approximately 1:39 a.m., central standard time. The accident involved a Canadian Pacific Railway freight train with two locomotives and 112 cars, 31 of which derailed. Several tank cars were breeched, releasing more than 250,000 gallons of anhydrous ammonia, creating a vapor cloud that was estimated to be 5 miles long, 2 ½ miles wide, and about 350 feet high. The accident resulted in one fatality. The Minot Rural Fire Department Fire Chief estimated that the anhydrous ammonia vapor cloud affected approximately 15,000 people, or 40 percent of the population of the City of Minot.

The train's operating crew stated that while traveling at approximately 40 miles per hour they felt a rough spot and were attempting to slow the train when the derailment occurred. The Board will hold a public hearing this summer regarding this accident and track issues will be addressed. We will keep the Committee advised of any developments as they occur.

Track issues are also being looked into as a result of the derailment in Crescent City, Florida, which involved an Amtrak auto train en route from Sanford, Florida, to Lorton, Virginia. The accident occurred on April 18, 2002, at approximately 5:40 p.m. eastern daylight time. The Amtrak train was operating over CSX Transportation track and was carrying 418 passengers and a crew of 34 at the time of the accident. The accident resulted in 4 passenger fatalities and over 28 injuries. The engineer told Safety Board investigators that he was operating under a clear signal indication when he saw a misaligned track approximately 60 feet in front of the engine. Before he could initiate the train's emergency brakes, he was thrown to the side of the locomotive cab. He then initiated the emergency brakes and felt the train derail.

The NTSB believes that the FRA needs to increase track inspections, and recommended—as a result of the Eunice, Louisiana, accident—that the FRA modify its track inspection program to consider the volume of hazardous materials shipments made over the tracks in determining the frequency and type of track inspections. We look forward to receiving the FRA's response.

Mr. Chairman, I would be remiss if I did not discuss a long-standing safety concern of the Board's—grade crossing safety. Data indicate that every 160 minutes a collision between a train and a car or a truck occurs at one of the more than 259,000 highway/rail grade crossings in the United States, resulting in 419 fatalities in 2001.

The most recent railroad/highway grade crossing accident report adopted by the Board involved an accident that occurred on March 15, 1999, in Bourbonnais, Illinois, which resulted in 11 fatalities. The Safety Board's investigation revealed that the truckdriver had ample time to safely stop his truck and avoid an accident, but likely as a result of fatigue, he failed to respond appropriately to the signals and instead decided to cross ahead of the train.

On-going grade crossing accidents include accidents that occurred November 20, 2000, in Intercession City, Florida, that involved an Amtrak train and an oversize/overweight tractor-trailer combination vehicle at a protected crossing, and May 14, 2002, in Coosawhatchie, South Carolina, that involved an Amtrak train and a tractor-trailer carrying logs at an unprotected crossing.

Ideally, the Safety Board believes that closing crossings or separating rail traffic from highway traffic through bridges and overpasses are the most effective means to eliminate accidents between highway vehicles and trains. The Safety Board recognizes that closures or traffic separation is not always possible. Therefore, the NTSB has also recommended that grade crossings be equipped with active devices that warn motorists of on-coming trains. We have seen, however, that even those crossings with flashing lights and gates do not prevent all accidents. Many Board investigations of accidents that occurred at active crossings have involved drivers who did not comply with train-activated warning devices installed at the crossings. Drivers often drove around lowered crossing gates or ignored flashing lights. Because of these deliberate actions by drivers, the Safety Board believes strong consideration should be given to the installation of devices that will prevent motorists from driving around lowered gates or median barriers.

As a result of the grade crossing accident in Bourbonnais, Illinois, the NTSB recommended that the Department of Transportation provide Federal highway safety incentive grants to States to advance innovative pilot programs. These programs are designed to increase enforcement of grade crossing traffic laws at both active and

passive crossings. We recognize that not all passive grade crossings will be upgraded in the near future with active warning devices, and we believe that education and enforcement, such as the use of cameras to catch violators who drive around the gates, must be a part of any effective grade crossing improvement plan. Many motorists fail to understand the level of risk at grade crossings, and do not realize that a 150-car train traveling at 50 miles per hour will take about 1½ miles to stop. The Safety Board fully supports the education efforts of Operation Lifesaver® and other endeavors to provide information about grade crossing safety to drivers, and has recommended that grade crossing questions be included on all drivers' license tests.

Thank you, Mr. Chairman. I will be happy to respond to any questions.

Senator BREAUX. Thank you, Ms. Blakey. We will go on to Mr. Rutter's statement. Please summarize, if you can.

STATEMENT OF HON. ALLAN RUTTER, ADMINISTRATOR, FEDERAL RAILROAD ADMINISTRATION

Mr. RUTTER. Thank you, Chairman Breaux. I appreciate the opportunity to appear before you today to discuss the current state of railroad safety in the Nation's railway industry.

As FRA Administrator, nothing is more important to me than railroad safety. Simply put, safety is what we are all about. It is the very reason for our existence. FRA's primary mission is to oversee and promote the safety and integrity of our Nation's freight and passenger railroad systems. We are responsible for administering and enforcing laws and regulations relating to rail safety through our headquarters personnel as well as more than 400 safety professionals throughout the field.

With that as background, I feel comfortable in reporting to this body that our Nation's rail system is among the safest modes of transportation in the world. However, as recent accidents indicate, even a single railroad incident has the potential to result in injury or, worse, loss of life.

To truly appreciate the safety of today's industry, it is important to look at the tremendous progress which has been achieved in past years, a great deal of which is due to the efforts of Members of this body. During the last two decades, the rate and number of accidents, employee injuries and fatalities, and train accidents with a hazardous material release have all declined significantly.

Between 1978 and 2001, the number of train accidents and the train accident rate dropped by more than 70 percent. Train accidents dropped from nearly 11,000 to just shy of 3,000, and the train accident rate dropped from 14.62 accidents per million train-miles to 4.17.

During the same period, the number of train accidents involving the release of hazardous materials declined nearly 80 percent. Just this past year, in 2001, we saw the lowest number of employee fatalities and injuries in the history of the industry, and while our numbers for 2002 are preliminary, so far total accidents and incidents have dropped by 22 percent.

With all that said, I in no way want to minimize the recent accidents, and I assure you that they have our attention. Each of the victims involved in these accidents had a name, and had family members. If nothing else, we owe it to these families to find out what went wrong, and to do all we can to make sure that these types of accidents do not happen again. My job, and the job of my colleagues, is to see that every railroad employee leaves work in

the same condition as he or she was when they began their shift, and that a commuter passenger arrives safely at his or her final destination.

Fortunately, I believe that these most recent accidents, though tragic, may not represent a trend. In working to determine what the problems are and why they are occurring, FRA does not rely on statistics alone. We are focusing on the underlying factor or factors which may have contributed to an accident happening in the first place, and how those factors can be mitigated.

We have changed the way we do business, focusing our inspection efforts and our enforcement tools where they will do the most good in terms of reducing the likelihood of train accidents and injuries. Our focus is more on accidents that result in death or injury, rather than on minor accidents, most of which happen in yards or terminals, which might be referred to as "fender benders". Now, instead of just handing out fines, we are working with all stakeholders, rail labor and management, suppliers and contractors, as well as other interested parties, all in the name of safety.

For example, when Amtrak began reporting a reduction in force earlier in this year, FRA immediately intensified efforts to work with Amtrak to see that these cuts did not affect basic safety. When certain railroads have had continuing incidents, we meet with the company's management to coordinate an effort to address these problems. We recently announced an industry-wide effort to work with the railroads to increase efficiency testing to reduce human factor-caused train accidents by ensuring the train crews are alert and complying with safety and operating rules.

Under performance budgeting, Congress saw fit to provide us with greater resources in the form of additional inspectors, which have been very helpful in addressing these issues. In addition to those actual performance matters, one of the most important ways we benefit from safety partnerships is in our rulemaking process. Our Railroad Safety Advisory Committee, or RSAC, gives all of the affected groups the opportunity to shape rules from their outset.

Unfortunately, one area of rail safety that continues to plague us is grade crossing and trespasser incidents, which account for 95 percent of all train-related fatalities. It is my opinion that only through an intensified and targeted educational effort, along with aggressive enforcement of State and local laws, and greater funding for physical improvements, will we begin to see those numbers decline.

In closing, while we will not be satisfied until we reach zero injuries and zero fatalities, I believe progress has been and will continue to be made in improving the safety of America's rail industry. We at FRA are totally committed to aggressive and proactive action to this end, and I would be glad to answer any questions you may have for me.

[The prepared statement of Mr. Rutter follows:]

PREPARED STATEMENT OF HON. ALLAN RUTTER, ADMINISTRATOR, FEDERAL RAILROAD ADMINISTRATION

Mr. Chairman and members of the subcommittee, I appreciate the opportunity to appear before you to discuss the state of railroad safety on our nation's railroads. On behalf of the Federal Railroad Administration (FRA), the agency charged with administering the nation's railroad safety laws, I extend my deepest sympathy to

the families of the people who died in recent accidents and to those who were injured. My testimony will explain how FRA's railroad safety program is working daily to reduce the likelihood and severity of accidents such as these and will demonstrate that the state of railroad safety is generally very positive.

FRA's safety mission can be simply stated: help prevent fatalities, injuries, and property damage related to railroad operations and releases of hazardous materials from rail cars, and enhance the security of railroad operations. Under the Federal Railroad Safety Act of 1970, FRA's jurisdiction extends to all areas of railroad safety. We have issued rules on a wide range of subjects including track, signal and train control, locomotives and other equipment, grade crossing signal devices, and operating practices, and we enforce those rules as well as rules related to hazardous materials transportation by rail. We conduct inspections of railroad operations to determine the level of compliance with the laws and regulations, and use a variety of enforcement tools when necessary to encourage compliance. We help educate the public about safety at highway-rail grade crossings and the dangers of trespassing on railroad property. FRA has its own accident investigation authority, and works closely with the National Transportation Safety Board (NTSB) on those accidents that NTSB investigates. FRA investigates a broader range of railroad accidents than NTSB, including those involving three or more deaths at a highway-rail grade crossing, an employee fatality, damages that exceed $1,000,000, or serious injuries to passengers.

FRA tracks the railroad industry's safety performance very closely by requiring reports of accidents and injuries, investigating major accidents, and inspecting railroads and hazardous materials shippers extensively. FRA's safety data base is available on its Web site (see *www.fra.dot.gov*). FRA uses this information to guide its accident prevention efforts and continually strives to make better use of the wealth of available data to achieve its mission.

The Current State of Railroad Safety Across the Nation

As judged by most indicators, the long-term safety trends on the nation's railroads are very favorable. While not even a single death or injury is acceptable, progress is being made in the effort to improve railroad safety. Based on preliminary figures, last year marked all-time safety records in several important categories. Overall, the total number of rail-related accidents and incidents and the total accident/incident rate were the lowest on record. Also, 2001 saw the lowest number of railroad employee fatalities (22) and injuries (7,575) on record and the lowest overall employee casualty rate (3.19 per 200,000 employee hours). In the period between 1978 and 2001, the number of reported train accidents dropped from 10,991 to 2,962, and the train accident rate fell from 14.62 accidents per million train-miles to 4.17 accidents. Also during this period, the number of train accidents involving a release of hazardous material declined from 140 to 31 despite a significant increase in the number of hazardous materials tank car shipments to more than two million per year. Since 1990, a period in which railroads have transported more than 20 million hazardous materials shipments, three persons have died as a result of the release of hazardous material lading in a train accident.

In other words, over the last two decades the number and rate of train accidents, total deaths arising from rail operations, employee fatalities and injuries, and hazardous materials releases and deaths related to those releases all fell dramatically. In most categories, these improvements were most rapid in the 1980s, and tapered off in the 1990s. (See the attached graph of train accidents and their rate since 1978.) Causes of the improvements 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.

Similarly, the grade crossing safety picture has shown great progress. In 1990, a total of 698 persons died in highway-rail grade crossing collisions. In 2001, the number was down to 419 despite an increase in exposure due to increased highway and rail traffic. Here, too, improvement 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, which was brought about by joint efforts of railroads, employees, FRA, the states, our Department of Transportation partners (Federal Highway Administration, Federal Transit Administration, Federal Motor Carrier Safety Administration, and the National Highway Traffic Safety Administration), and Operation Lifesaver®.

Despite the impression one might get from news accounts of recent accidents, rail remains an extremely safe mode of transport for passengers. In the five-year period between 1997 and 2001, just two passengers were killed in train collisions and

derailments, and 13 more in grade crossing collisions, out of the 2.3 billion passengers who rode our nation's commuter and intercity passenger trains. According to the National Safety Council (see attached chart on passenger death rates), the number of deaths per 100 million railroad passenger-miles is quite comparable to the rate for airline passengers, both of which are a fraction of the rate for automobile passengers. Given the strength of rail passenger equipment and the fact that rail passengers are distributed throughout a train in such a way as to minimize the impact of a collision or derailment for many, rail passenger accidents-while always to be avoided—have a very high survival rate.

Unfortunately, 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. In 2001, a total of 508 persons died while on railroad property without authorization, which was an increase of nearly 10 percent over the previous year. Track safety has also emerged as a growing problem. The number and rate of "track-caused" accidents have actually increased over the last few years. For the first time in many years, in 2001, track causes actually exceeded human factors as the largest category of train accident causes. In that year, track causes were cited in about 38 percent of all reported train accidents, while human factors accounted for about 34 percent, equipment causes were responsible for about 14 percent, signal-related factors were causal in about one percent, and miscellaneous causes accounted for the remainder.

Any discussion of the railroad accident data, however, must take into account the fact that, under the current reporting threshold, any train mishap resulting in at least $6,700 in damage to railroad equipment or structures must be reported as a "train accident." This means that many "fender benders" and mechanical malfunctions that pose no danger to either the public, railroad workers, or railroad operations meet the reporting threshold and are classified by FRA as train accidents. For example, FRA recently analyzed the number of train accidents in its database that occurred on Amtrak's Northeast Corridor over the past five years. While the raw data contained 101 events that were classified as train accidents, closer examination revealed that 84 incidents involved mechanical malfunctions or damage to the overhead electrical equipment. These malfunctions cause a loss of electrical power that interrupts train service but causes no harm to the passengers. There were also three cases of vandalism to trains, five cases of trains striking debris and animals on the track, three incidents in which no passenger train was involved, and one fire caused by a cigarette in restroom debris. In fact, of the 101 total accidents reported on Amtrak's Northeast Corridor over the five-year period, there were only three train derailments, two of which occurred at very low speeds, and there were two cases where an Amtrak train struck unsecured equipment protruding from passing freight trains.

Another factor to consider when discussing train accidents is that the severity of accidents can vary greatly. More than half of all train accidents occur in yards where train speeds are low, resultant damages are minor, and casualties are rare. Consider, for example, that train accidents, as FRA uses the term, resulted in only six of the 966 deaths associated with railroading in 2001. The vast bulk of those fatalities involved grade crossing incidents (419 deaths) and trespassers (508 deaths). Given the limited usefulness of the aggregate data, FRA tries to continually mine the accident and inspection data at its disposal to find where the major pockets of risk exist and then determine how its actions can produce the biggest safety returns.

FRA is also quite concerned at the number of recent train collisions in which human performance appears to be a primary contributing factor. Since the Placentia, California collision in April of this year, there have been seven more serious collisions. In many of these cases, we believe that compliance with the railroad's own operating rules on signals and restricted speed may have prevented the accident. As explained more fully below, FRA has recently launched a nationwide, focused effort to examine how the railroads are implementing their own programs for testing their employees' compliance with these important safety rules.

FRA's Safety and Security Program

FRA's safety program is the heart and soul of the agency. The program has several elements: setting safety standards, ensuring compliance with those standards, focusing attention on serious safety problems whether or not covered by current standards, educating the rail industry on the federal standards and the public on rail safety issues, focusing on emerging security issues, investigating accidents and employee fatalities, conducting research and development on safety issues, and setting the tone for safety efforts in the industry.

The program's most important element, of course, is its people. Our Office of Safety headquarters staff of 100 works on the gamut of activities including rulemaking, compliance, data analysis, and program management. Our field force of 486 (which includes safety inspectors, support staff, and managers) works on inspection and compliance activities, investigations, and outreach to communities and the public on safety issues. More than 160 certified state safety inspectors from 30 states supplement the efforts of our field forces in all of these areas. Supporting the Office of Safety is the Safety Law Division of the Office of Chief Counsel, our Office of Administration (which provides human resource, budget, information technology, and procurement support), our public affairs staff, and our research and development office.

Setting Safety Standards

Congress has authorized FRA, as the delegate of the Secretary of Transportation, to issue necessary regulations and orders for every area of railroad safety. Since FRA's inception in 1967, the agency has issued a wide range of standards on subjects such as track safety, signal inspection, freight car safety, passenger car safety, locomotive safety, power brakes, alcohol and drug testing, operating rules and practices, accident reporting, hours of service recordkeeping, railroad communications, roadway worker and bridge worker protection, engineer qualifications, grade crossing signal maintenance, and passenger train emergency preparedness. FRA also assists the Department of Transportation's Research and Special Programs Administration (RSPA), which issues hazardous materials standards for all modes of transportation, in developing standards for rail transportation of those materials.

In 1996, FRA established the Railroad Safety Advisory Committee (RSAC) to develop consensus recommendations on safety issues. RSAC contains representatives from all major groups interested in railroad safety, including railroads and their associations, railroad labor organizations, the states, suppliers, and public interest groups. The NTSB and representatives from Mexico and Canada are associate members of the committee, as are a number of groups added to ensure RSAC's diversity. FRA seeks RSAC's recommendations on specific tasks; on each task, RSAC can decide whether or not to accept it and begin work. On those tasks it accepts, RSAC members appoint a working group of those most involved with the subject covered by the task. If the working group's recommendations are unanimously adopted by that group and by a majority of the full RSAC, they are sent to the FRA Administrator. While FRA is free to accept or reject RSAC's recommendations, we fully engage ourselves in the working group process to ensure that the recommendations are consistent with FRA's goals for the rulemaking project. As a result, our proposed and final rules that arise from RSAC recommendations usually incorporate those recommendations substantially.

This consensus approach to rulemaking has produced notable successes: revised track safety standards that include rules for high speed operations, revised communication standards reflecting technological advances in the field, and updated certification standards for locomotive engineers. More important, RSAC has helped engender a cooperative approach to developing new safety rules in which the railroad industry's major players have the opportunity to shape FRA's, and each other's, thinking from the start and feel more invested in the final product.

FRA's recent standard-setting accomplishments include the first standards for passenger cars, issued in 1999, which were the product of a rule-specific consensus process separate from RSAC; power brake standards for freight service, which FRA issued in 2001 without the benefit of consensus recommendations after an unsuccessful attempt to achieve consensus; and, issued just this year, the first standards for locomotive cab sanitation, which are the product of the RSAC process. Late in 2001, we issued an interim final rule establishing a United States locational requirement for dispatching domestic train operations.

FRA has several important regulatory projects under development. We are developing, through the RSAC process, standards for processor-based signal and train control systems (discussed more fully below), which will lay the foundation for integrating such systems into the existing rail network. We hope to have a final rule out this year. We are also using the RSAC process to develop revised event recorder standards to facilitate movement to a new generation of recorders and standards for the crashworthiness of locomotives. One major rulemaking on which we are not using the RSAC process is our final rule on the use of train horns at grade crossings. While very broad-based, RSAC membership is not sufficiently broad to include all the interests that might be directly affected by this rule. Instead, to address this sensitive subject, we held a dozen public hearings across the country and a technical conference and have engaged in extensive outreach with local communities.

Whether or not we employ the consensus process of RSAC, in all of our standard-setting activities we strive to avoid unnecessary regulation, consider all reasonable options, and issue rules that embody a fitting balance between benefits and burdens, are clearly stated, and are enforceable. However, neither the consensus rulemaking process nor the more traditional process is designed for quick action. Rulemaking can take a very long time. My philosophy is to try to do fewer things better and more quickly rather than trying to write simultaneously every rule that might have found its way onto the agency's agenda. This fits with the Department's renewed emphasis on rulemaking timeliness, which entails enhanced methods of coordinating and monitoring regulatory projects and tighter control of the clearance process.

Encouraging Compliance and Safety Improvements

The railroads, of course, have the responsibility for compliance with the standards FRA sets and to perform the necessary inspections and tests to ensure that they do comply. There are more than 650 railroads in the nation operating more than 1,000,000 pieces of equipment over more than 200,000 miles of track. FRA's inspection force cannot possibly observe all railroad activity. Instead, FRA monitors railroads to determine their level of compliance with those standards and employs a variety of tools to encourage compliance. We start with the assumption that railroads and their employees want to do the safe thing for their own benefit, not just because a law or regulation requires it. And we also understand that the Code of Federal Regulations is not the sole source of wisdom on safe practices; there are, in fact, safety problems not covered by existing rules that require a solution nonetheless.

FRA calls its approach to compliance the Safety Assurance and Compliance Program (SACP). The basic principles of SACP are to look for root causes of safety problems, try to develop solutions to those problems cooperatively with railroad management and employees, and focus both inspection activity and the use of enforcement tools on the most serious safety risks, as revealed by our inspections and our accident data. On each of the major railroads, SACP teams include FRA inspectors and managers, railroad officials, and employee representatives. The SACP teams provide a forum for resolving both compliance issues and safety problems not within the four corners of existing rules. Issues can be resolved through informal agreements or formal action plans. At the same time, FRA continues its normal review of railroad activities through regular inspections of facilities, vehicles, operations, and records and investigation of complaints.

FRA's policy is one of focused inspection and enforcement. That is, we try to concentrate our inspection efforts on detecting conditions that are leading causes of accidents, injuries, and hazardous materials releases, and, where noncompliance is found, we try to focus our enforcement efforts on violations that may cause such events. Where routine inspections reveal minor defects that pose little risk, FRA will certainly address the noncompliance with the railroad but is not likely to take enforcement action. Where a railroad has acknowledged the existence of a serious safety problem, developed a plan for alleviating it, and implemented that plan in a timely way, FRA will ordinarily take no enforcement action in the absence of some immediate hazard. However, FRA is very likely to use its enforcement tools where FRA discovers serious safety violations causing an immediate and unacceptable risk that the railroad should have found and corrected on its own. FRA is also likely to take enforcement action where, even though there is no immediate hazard, FRA has identified serious rail safety problems requiring concerted action by the railroad to prevent an unacceptable risk from developing, and the railroad has failed to make a good faith effort to implement a specific remedial program to fix those safety problems by a date certain, despite having agreed to do so.

Where enforcement appears necessary to encourage compliance, the tool we use will depend on the circumstances. Civil penalties are the most frequently used tool. In fiscal year 2001, for example, FRA collected over $7.6 million in penalties from railroads and hazardous materials shippers. Our Office of Chief Counsel, based on the recommendations of our field inspectors and working closely with the Office of Safety, assesses and collects these penalties. As the safety statutes encourage us to do, we settle nearly all of these cases through negotiations with railroads and shippers, and determine settlement amounts by applying the settlement criteria stated in the safety statutes. The settlement negotiations provide an excellent forum for addressing the most current and serious compliance issues that have not been resolved through more cooperative methods.

FRA has several other enforcement tools. Our inspectors can issue special notices removing locomotives or freight cars from service until they are repaired, or lowering the speed of track to a speed at which the track segment is in compliance with the standards. We sometimes enter into compliance agreements with railroads in

which the railroad promises specific remedial actions and, should it fail to deliver on its promise, agrees to the imposition of a compliance order, emergency order, or particular fines. The FRA Administrator can address an imminent safety hazard by issuing an emergency order, with opportunity for review of the order after its issuance. Civil penalties are available against individuals who willfully violate the safety regulations, and FRA may disqualify individuals from safety-sensitive service if their violation of safety regulations demonstrates their unfitness for such service. Criminal penalties apply for certain willful violations of the hazardous materials rules and knowing and willful violations of recordkeeping or reporting requirements. We have made increased use of these criminal penalties in recent years, especially for serious violations of the rules concerning proper documentation of hazardous materials shipments.

Accident Investigations

Nearly a century ago, Congress gave FRA's predecessor, the Interstate Commerce Commission (ICC), the authority to investigate railroad accidents. FRA inherited that authority and continues to implement it. Where the NTSB decides to investigate, its investigation generally has priority over those of all other federal agencies, but does not extinguish the investigative authority of those agencies. In those cases, which usually involve the most serious accidents, our investigators work closely with NTSB and serve on NTSB's teams. As previously noted, FRA also investigates a broader category of accidents and incidents than does NTSB.

Most or all of the recent accidents that concern this Committee are still under investigation by NTSB , FRA, or both. Final determinations of probable cause will not be issued for some time. I refer you to NTSB's testimony for any details of its investigations that the Board may be able to share at this time.

The final, detailed reports that NTSB and FRA produce concerning accidents are a very important tool in identifying risks and determining what actions FRA may need to take to reduce those risks. While FRA pays very close attention to major accidents to determine what conditions might require immediate agency action, those accidents sometimes involve such unique combinations of causal factors and often take so long to analyze effectively that they do not offer immediate insights into actions that might prevent similar accidents. However, because FRA's role is regulatory and not just investigative, where FRA gleans any useful information from investigations while they are underway, we use it immediately to try to prevent a recurrence.

Research and Development

FRA has an extensive research and development (R&D) program. Although that program resides in our Office of Railroad Development rather than our Office of Safety, its primary mission is to serve the safety program. Our R&D efforts also serve the railroad industry, railroad employees, and suppliers of railroad equipment. FRA owns the Transportation Technology Center near Pueblo, Colorado, which is operated under contract by a subsidiary of the Association of American Railroads (AAR).

FRA's R&D program includes these elements:

- The Railroad System Issues element encompasses research on technological and operational developments in the industry that may affect safety; system safety planning; and physical and cyber security in the railroad system.
- The Human Factors element focuses on human performance in railroad operations (*e.g.*, the effects of fatigue) and at grade crossings (e.g., the interface between highway users and visual and audio warnings).
- The Rolling Stock and Components element focuses on improvement of equipment defect detection and control via wayside and onboard technology and the development of advanced materials.
- The Track and Structures element focuses on improved methods of detecting hazardous conditions that can lead to failure of rails or structures.
- The Track/Train Interaction program assesses improved methods for reducing derailments due to interactions of track structures and vehicles.
- The Train Control program involves facilitation, risk analysis, testing, and evaluation of new train control systems, including positive train control.
- The Grade Crossings program focuses on technical aspects of crossings such as train presence detection, crossing geometry, and warning device technology.
- The Hazardous Materials element addresses the design and structural integrity of tank cars.

- The Occupant Protection element looks at the structural crashworthiness of locomotives and passenger cars through simulations, laboratory tests, and full scale fire and impact tests.

A theme running through virtually all of the R&D program elements is the use of sensors, computers, and digital communications to collect, process, and disseminate information to improve the safety, security, and operational efficiency of railroads. Along the lines of the Intelligent Transportation Systems being developed in the highway and transit industries, FRA and the railroad industry are working on the development of Intelligent Railroad Systems that would, in an integrated way, incorporate the sensor, computer, and digital communications technologies into train control, braking systems, grade crossing protection, track and equipment defect detection, and scheduling systems as well.

The R&D program also includes the Next Generation High-Speed Rail Technology Demonstration Program, which will help develop and demonstrate the utility of positive train control, a high-speed non-electric locomotive, innovative grade crossing warning systems for application on high-speed corridors, and innovative methods of constructing track and structures suitable for high-speed passenger operations and heavy axle load freight operations. Our R&D office is also implementing the Magnetic Levitation Technology Deployment Program.

FRA's Strategies for Accident Prevention

FRA combines all of the elements of its safety program to address current problems that are likely causes of accidents, injuries, and hazardous materials releases. Railroad safety contains several sub-fields, or disciplines. For each discipline, I will give some examples of how the safety program elements have been brought to bear on safety problems.

Human Factors

Human performance, especially that of railroad employees and their immediate supervisors, is critically important to railroad safety. Human factors cause about a third of train accidents and a large portion of employee injuries every year. In the 1980s, FRA identified abuse of alcohol and drugs by operating employees as a major contributor to serious railroad accidents. In 1985, the agency issued the nation's first alcohol and drug testing requirements for private sector employees. At first, railroad employee organizations opposed those rules all the way through the Supreme Court, where the rules were upheld in a landmark case in 1988. The rules have proven enormously successful and have virtually eliminated the use of alcohol and illegal drugs as a cause of train accidents. Although no one likes being tested, many employees have praised these rules as having greatly improved the safety of the industry and, in some cases, the lives of individual employees whose substance abuse has been addressed because of the rules. FRA is currently exploring the subject of legal drug use as a factor in accident causation, having been urged to do so by NTSB.

A more recent example of FRA's efforts to use the various elements of its safety program to address an area of serious safety risk is the Switching Operations Fatality Analysis (SOFA) Working Group. In the late 1990s, FRA realized that an increasing number of employee fatalities and serious injuries were occurring in the context of switching operations. FRA organized the SOFA Working Group to develop recommendations for preventing such casualties. Representatives of the AAR, the United Transportation Union, the Brotherhood of Locomotive Engineers, and The American Short Line and Regional Railroad Association analyzed 76 fatal switching incidents that occurred between 1992 and 1998. The Working Group recommended five basic practices (the "SOFA lifesavers") that, if followed invariably, would prevent such fatalities: notification to the engineer before fouling the track; extra precautions when two or more crews are working on the same track; a safety briefing before the work begins; proper radio communications; and paying special attention to crew members with less than one year of service. The recommendations were voluntarily adopted by railroads across the nation. The Working Group continues to track and report on switching incidents. Switching fatalities have dropped from thirteen in 2000, to eight in 2001, to two so far this year, while both the number and rate of yard accidents declined 8 percent and 4.6 percent, respectively, in 2001. This is an example of how consensus, non-regulatory actions can be very effective in some circumstances.

Even more recently, FRA has taken action to address a sudden spate of train collisions in which human performance appears to be a primary contributing factor. On April 23, 2002, in Placentia, California, a Burlington Northern Santa Fe freight train collided with a Southern California Regional Rail Authority passenger train, resulting in two fatalities and 161 injuries. We believe the freight train passed a

restrictive signal. In just the past two months, there have been seven additional train collisions. Including Placentia, four of these collisions involved passenger trains and resulted in two fatalities and 258 injuries, and the other four collisions involved freight trains and resulted in one fatality and 21 injuries.

While the investigations of these accidents are not yet complete, in each case the early indications are that human error appears to have been a primary causal factor. The errors included running past restrictive signals, failing to comply with restricted speed requirements, and failure to broadcast on the radio the location of the train. All of these behaviors violate railroad operating rules, and in some cases FRA safety regulations. FRA requires railroads to conduct periodic operational tests and inspections to determine the extent of their employees' compliance with these critical operating rules. These "efficiency tests," as they are widely known, entail direct observations of employee performance during train operations.

On June 28, 2002, I wrote to the major railroads, commuter railroads, labor organizations, and trade associations to announce a focused effort to examine railroad efficiency testing programs. During the next several months, FRA and state safety inspectors will be working intensively with railroad officers to examine each major railroad's efficiency testing procedures, techniques, and results. We believe that improving the quality of efficiency testing programs will play an important role in stemming this unfavorable trend.

Fatigue on the part of operating employees has long been an important safety issue. Congress first addressed the subject by enacting the Hours of Service Act in 1907, which limited duty tours for train crews to 16 hours. As a result of amendments in 1969, that maximum was eventually reduced to 12 hours on duty in a 24-hour period. Off-duty periods must be at least 8 consecutive hours or, if the employee works 12 consecutive hours, the off-duty period must be at least 10 consecutive hours. FRA does not have authority to change these statutory parameters. Even if these restrictions are observed, train crews can work an enormous number of hours in a week, month, or year. While commuter train crews may have some predictability in their work schedules, crews of road trains rarely do. The long hours, irregular work/rest cycles, and lack of regular days off combine to have a very deleterious effect on employee alertness.

Operating employee fatigue is clearly a reality. The causal relationship between fatigue and particular train accidents or injuries has been clearly demonstrated in some instances, and fatigue is suspected as a causal element in many of the human factor accidents that comprise a large percentage of all train accidents. The NTSB has listed employee fatigue in all modes of transportation among its top ten "Most Wanted" recommendations. While research conducted by the Department of Transportation and others has demonstrated that fatigue impairs mental acuity, judgment, and reaction times, the cause of any specific human performance failure can be extremely difficult to pinpoint; therefore, it is often difficult to prove the exact role that fatigue may have played in a specific accident or what role fatigue plays in accident causation as a general matter.

Even more difficult is deciding how to address fatigue effectively. The major railroads and leading labor organizations have entered into a variety of arrangements in the last several years in an attempt to manage fatigue. These efforts to minimize the impact of fatigue have been significantly enhanced by utilizing the partnerships resulting from the SACP and the North American Rail Alertness Partnership (NARAP). The latter, a voluntary coalition of rail labor, management, governmental entities including FRA, and other concerned parties, has been especially fruitful in identifying fatigue concerns *and* solutions. As the result of partnership efforts, the following measures are becoming the norm throughout the industry: undisturbed rest periods; improvements in lodging facilities, including single occupancy; on-duty napping policies, especially for the operating crafts; work/rest refinements, *e.g.*, balancing operational requirements with appropriate work/rest schedules; educational measures on fatigue management that consider the families of employees; and screening for sleep disorders.

In addition to facilitating NARAP's cooperative efforts, FRA has embarked on a vigorous program to address a multitude of fatigue-related concerns through research on subjects that include: alertness of crew van drivers; measurement tools for assessing the success of fatigue countermeasures; individual fatigue awareness and behavioral change; alertness training videos; and analysis of a number of accidents/incidents using a software model designed to determine the impact of fatigue on performance.

FRA will continue to monitor the results from these various cooperative arrangements and research projects on fatigue and, as the need arises, recommend legislative action, take relevant regulatory action (to the limited degree it may do so in this context), or both.

Track and Structures

As mentioned previously, track-caused accidents have been on the rise in recent years, and track became the leading accident cause in 2001. Reasons for this increase and the deterioration in track conditions it reveals are not certain, but may include reduced investment in infrastructure, reduced maintenance-of-way staffs, insufficient training or monitoring of railroad track inspectors, increased traffic, increased axle loadings, and/or higher speeds. Of course, conditions vary from railroad to railroad.

FRA recently had great success in working with CSX Transportation, Inc. (CSX) to improve its track safety program. In 2000, FRA and state inspectors discovered disturbing patterns of noncompliance on CSX involving track gage, track inspection, and track repair. Track-caused accidents were on the increase. FRA and CSX entered into a unique compliance agreement that blended cooperative aspects with strict enforcement. Under the agreement, CSX promised to take specific steps to improve its use of track geometry vehicles, implement revised instructions for track inspections, develop performance standards and quality control teams for large scale track work, enhance management oversight of track inspections, and provide FRA with its capital improvement and maintenance programs for the next three years. CSX also agreed that it would pay fines without contesting them if FRA discovered any unacceptable track conditions posing an imminent hazard to train operations, and that FRA was authorized to issue a compliance order or emergency order that CSX would not contest if CSX failed to comply with the agreement. CSX took the necessary actions under the agreement (although it paid some uncontested fines along the way) and, within a year, had reduced its track-caused derailments substantially. FRA and CSX renewed the agreement for a second year, although, because of CSX's excellent performance, without certain of the original agreement's harsher enforcement provisions. The agreement expired on May 1st of this year, and the second year's results were also impressive: the number of track-caused derailments on CSX in 2001 was 25 percent lower than the number for 2000. The compliance agreement, coupled with CSX's commitment, brought about significant safety improvement.

The trend on track-caused accidents, however, is national in scope. To help address the problem FRA has sought and obtained 12 additional track inspector positions in fiscal year 2002, and the President's budget for fiscal year 2003 contains a request for an additional 12 positions.

In addition to augmenting its track resources, FRA has brought a fresh perspective to enforcement in the track area. In January 2002, FRA issued a new track enforcement manual in that makes focused enforcement a reality. The manual provides guidance on how to focus inspections on the leading causes of train accidents and strongly recommends taking enforcement action when certain very serious violations are found. FRA is making use of its new resources and more focused enforcement policy to address the track compliance problem. We will blend cooperative measures and tough enforcement to get the job done, as we did with CSX in recent years. For those who may be less willing than CSX was to meet the challenge head on, we will use whatever level of inducement is necessary to ensure improved compliance and safety results.

America's more than 100,000 railroad bridges are generally quite old but in most cases structurally sound. Many of the large bridges were designed to carry the heavy steam locomotives of their time and have a reserve capacity to safely carry today's railroad traffic. However, present-day car weights are approaching the design capacity of these bridges, and because of increasing traffic density on main routes, some of these bridges require increasingly intensive inspections and higher maintenance expenditures if they are to remain serviceable. Some shortline railroads lack sufficient capital to upgrade smaller bridges to handle the increasing weights of the latest generation of freight cars. FRA has had to issue two emergency orders against small railroads removing bridges from service when their owners failed to properly evaluate and repair conditions that posed a risk of catastrophic failure. In 2001, FRA entered into a successful compliance agreement with a regional railroad in which the railroad agreed to evaluate and repair its bridges in an orderly way as an alternative to emergency action by FRA.

Serious bridge safety problems have occurred infrequently, and FRA has been able to resolve them on a case-by-case basis without issuing mandatory regulations. Such rules would be very complex and could cause unnecessary expenses by requiring railroads to adapt their successful but varied bridge management practices to a common Federal standard. In 2000, rather than issuing binding rules, FRA issued a bridge safety policy that establishes suggested guidelines for bridge inspection and management. The policy (49 C.F.R. Part 213, Appendix C) makes clear that, if a bridge owner jeopardizes public and employee safety by failing to resolve a bridge

problem, FRA will use any appropriate enforcement tool, including an emergency order, to bring about elimination of the hazardous bridge conditions.

Hazardous Materials

The safety of hazardous materials transportation by rail depends to a large degree on safe track, equipment, and operating practices to ensure that the hazardous materials container is not involved in a train accident. The hazardous materials discipline, on the other hand, focuses on the integrity of the containers that hold the hazardous materials, the proper identification and marking of those containers, the use of appropriate shipping documents identifying the hazards presented by the material, the proper handling of the vehicles that contain these materials, and training of all who play a role in the preparation of these shipments and their movement. Within the Department, RSPA provides excellent leadership on these matters, which cut across the different modes of transportation.

Railroads have an outstanding record in moving hazardous materials safely. Releases of those materials as a result of train accidents are down sharply from earlier years. However, releases from stationary tank cars in rail yards or chemical facilities are a continuing problem. The primary cause of these releases is improper securement of the cars by the shipper. Much of FRA's enforcement efforts in this area are against shippers who commit these securement violations or improperly describe the shipments, which impedes appropriate handling and emergency response. Some of our investigations have led to criminal charges being brought against companies that prepare shipping papers for other companies and do so improperly.

Our hazardous materials staff closely tracks reports of hazardous materials releases or problems with the integrity of railroad tank cars. This has enabled FRA to stay ahead of emerging problems before they lead to tragic results. For example, we have on several occasions discovered patterns of cracks, deterioration, and even structural failure in particular portions of the tank car fleet. After thorough analysis of the problem, we have brought pressure to bear to ensure that all cars of the type shown to exhibit the problem are promptly inspected and, if necessary, repaired. We have done this through emergency orders and, more recently, through use of a new regulatory provision that permits FRA to require special inspections of tank cars in these situations. We believe these actions, which draw little public attention, have prevented a number of significant releases of hazardous materials.

FRA has also taken a proactive approach to the transportation of spent nuclear fuel and high-level radioactive waste. Our Safety Compliance Oversight Plan for transportation of those materials involves participation in route planning, ensuring proper training of railroad employees and emergency responders, and more intensive inspection of routes, equipment, and operations involved in those shipments.

Motive Power and Equipment

Congress began regulating railroad equipment by enacting the first Safety Appliance Act in 1893 and the Boiler Inspection Act in 1911. FRA has established standards for safety appliances (features of rail cars intended to prevent injury of the employees who work on and around them), power brakes, locomotives, and freight car components. We are currently implementing the first standards for passenger equipment, and revised standards on power brakes and their inspection. We are drafting standards for the crashworthiness of locomotives.

While equipment-caused accidents have trended slightly upward in recent years, they still account for a relatively small portion (18 percent) of all accidents. However, certain equipment failures can lead to devastating accidents, especially at higher speeds, and poorly maintained equipment can cause serious employee injuries. Accordingly, FRA inspectors carefully monitor railroad compliance with the equipment standards and employ civil penalties and special notices for repair as ways of encouraging compliance on serious matters. FRA's R&D efforts may play a very important role in developing improved methods of detecting equipment defects before they cause accidents.

As this decade unfolds, FRA hopes to find ways of encouraging the railroads to use electronically controlled pneumatic (ECP) braking. The AAR has been at the forefront in developing this technology and making sure it is mature. Now railroads need to take advantage of ECP train braking, which can reduce stopping distances and in-train forces, making it much easier for locomotive engineers to safety handle heavy tonnage trains and consists containing cars of various sizes and weights.

Signal and Train Control

Recent collisions, including the fatal collision of April 23rd between a Burlington Northern Santa Fe freight train and a Metrolink commuter train at Placentia, California, remind us that current methods of train operation rely too heavily on crew recognition of, and compliance with, signal indications (or with mandatory directives

in written form). FRA is supporting deployment of advanced signal and train control technology to improve the safety, security, and efficiency of freight, intercity passenger, and commuter rail service. These new systems will use various technologies to determine the precise location of trains and automatically control their movements when necessary to prevent a collision. This developing family of technologies, which we have referred to as Positive Train Control (PTC), is capable of preventing train collisions, overspeed derailments, and casualties to roadway workers (*e.g.*, maintenance-of-way workers, bridge workers, signal maintainers) operating within their limits of authority and can meet mandatory requirements for train control systems on developing high speed corridors wherever train speeds will exceed 79 mph. This technology has the potential capability to limit the consequences of events such as hijackings and runaways that are of special concern in an era of heightened security. Looking well out into 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 as a part of Intelligent Transportation Systems (starting with priority vehicles such as school buses and tractor trailers carrying hazardous materials).

Communications-based PTC will be more affordable than signal-based systems such as automatic train control (ATC) and will address a wider range of safety needs. FRA is promoting PTC by describing the necessary conditions for its introduction, putting in place more flexible regulations, investing expertise and funding in development and demonstrations of the technology, and requiring the use of technology addressing PTC functions where it is clearly warranted to do so.

Describing the necessary conditions. FRA's RSAC provided a Report to the Administrator on ***Implementation of Positive Train Control Systems*** in September of 1999. The report resulted from extensive effort by a working group comprised of representatives of railroads, rail labor organizations, states, and suppliers. One major result of the activity is increased understanding by all parties of the complexities of designing, installing, operating, and maintaining the proposed systems. FRA transmitted this report to the Congress on May 17, 2000, and it is available on our Web site at *www.fra.dot.gov* (under "Documents" for the year 2000). The report describes the safety and business uses of PTC systems and a variety of potential PTC architectures. The report documents the fact that risk is widely dispersed on the national rail system and that it will be necessary to implement PTC on a large scale in order to address the reality of locomotives which often move throughout the national rail network. The working group carefully studied the record of "PTC-preventable" accidents and developed cost estimates for various levels of PTC. The ultimate conclusion was that, based on safety benefits alone, PTC cannot be justified on a large scale. However, the RSAC remained optimistic that, as the technology is proven, unit costs decline, and the business benefits of the technology become better evident (*e.g.*, as limitations on rail capacity make it more important to precisely monitor and control rail traffic), passenger and freight railroads will find it attractive to make the necessary investments.

In anticipation of these developments, the RSAC described several things that industry and government need to do to support the growth of this life-saving technology. The major actions and the status of those activities follow.

Providing safety standards that fit the need. The RSAC recognized that existing signal and train control regulations (49 C.F.R. Part 236) were built around older technology and present potential obstacles to change. As a result, on August 10, 2001, FRA published a notice of proposed rulemaking on Performance Standards for Processor-Based Signal and Train Control Systems that was the consensus product of the RSAC. The RSAC Working Group has met to consider recommendations for finalizing the rule. Consultations among members are continuing to resolve a significant remaining issue, and the Working Group is also helping to develop a risk assessment toolset that can be used to make the necessary safety case for new systems under the rule.

Developing and deploying technology. The RSAC also recognized that public and industry investment was necessary to "jump start" PTC deployment by advancing the design process and by providing evidence that the technologies will be reliable as installed. Since advanced train control systems are mandatory where speeds above 79 mph are proposed, developing and demonstrating practical, affordable train control technology have been major program elements of FRA's Next Generation High Speed Rail technology development program.

In 1995, FRA joined 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 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

will not be provided). On April 18, 2001, Amtrak turned on ITCS for revenue service, and an increase in train speeds to 90 mph was authorized by FRA in January 2002. The system is designed to support operations to 110 mph.

On January 23, 1998, as the RSAC was engaged in its initial work, FRA joined with the AAR and the State of Illinois to begin development of a high-speed PTC project for the St. Louis-Chicago corridor. The project has now been integrated into the North American Joint PTC Program. AAR is contributing $20 million and providing project management. The Illinois Department of Transportation is providing over $12 million, and FRA is providing over $28 million as part of the Next Generation High Speed Rail Program (NGHSR). With funds in the FY 2002 appropriation, the $60 million project total estimate is now fully funded. Lockheed Martin, the System Development/Integration contractor, and program participants are finalizing software and beginning installation of hardware. The system is expected to be ready for revenue service by mid–2003. FRA is working with the project team regarding necessary safety approvals. The North American PTC Program is also the venue for the industry's development of standards for PTC interoperability (further discussed below).

Utilizing funds provided specifically for this purpose, FRA is also working with the Alaska Railroad to identify a migration path to PTC on their current rail lines, which are currently operated without the benefit of signal systems.

Conceiving standards for interoperability. The RSAC also recognized that, were the various railroads to "go their own way" in designing PTC systems, the result would be either excessive cost (as various train control devices were placed on many locomotives) or limited functionality (with trains from one railroad running "unequipped" on other railroads). This has always been a matter of concern for Amtrak and commuter authorities that operate on the lines of multiple railroads, but is of increasing concern today because of the freight railroads sharing of locomotives and the extensive networks of trackage and haulage rights conferred in connection with recent rail mergers in order to preserve competition. Accordingly, the North American Joint PTC Program has been selected as the venue for the industry's development of standards for PTC *interoperability*. Interoperability refers to the ability of a train to move from one railroad to another (or from one type of train control system to another) at track speed while under continuous supervision of the train control systems. The North American Joint PTC Program has not completed the desired standards for interoperability, but work is underway including agreement on a flexible, modular approach to meet the needs of diverse railroad operations and establishment of a master database to standardize the messages transmitted by various PTC systems. Two industry task forces with participation from railroads, suppliers, and FRA are working to standardize the application of electronic devices aboard locomotives and the use of wireless communications by railroads, both critical to the ultimate success of PTC systems.

Ensuring adequate radio frequency (RF) capacity. The RSAC recognized that RF data link technology would be the critical communications medium within PTC, particularly to connect trains with the wayside infrastructure and the central office. All across the national economy, greater and greater demands are being made on the inherently limited RF spectrum. During the late 1990s, the Federal Communications Commission conducted proceedings for "refarming" of assigned frequencies; and FRA supported rail industry requests to retain existing frequencies available for railroad voice and data communication free of interference from adjacent channels (with splitting of existing railroad channels to make better use of the assigned frequencies). These efforts were successful, and the industry and FRA continue to study whether existing RF capacity will be fully adequate for PTC and related safety and business requirements. In partnership with the industry Wireless Communications Task Force, FRA is sponsoring the establishment of a radio communications testbed at the Transportation Technology Center in Pueblo, Colorado, to provide a means for objective, repeatable testing of the critical communications links which will be essential for widespread deployment of PTC systems as well as other railroad operations.

Providing precise and secure positioning. The RSAC also recognized the importance of providing, as a public utility, a nationwide positioning service sufficiently precise to support PTC. In order to meet this need and other surface transportation requirements, FRA became the Federal program sponsor of the Nationwide Differential GPS (NDGPS) Program. This augmentation to the Global Positioning System (which uses a constellation of satellites to broadcast positioning information for military and civilian purposes) provides more precise positioning and continuous integrity monitoring in support of safety-of-life applications for surface transportation and other purposes. NDGPS effectively addresses limitations associated with uncorrected GPS signals and provides one-to-two-meter positioning accuracy. NDGPS is

an expansion of the U.S. Coast Guard's Maritime DGPS network and makes use of decommissioned U.S. Air Force Ground Wave Emergency Network (GWEN) sites to calculate and broadcast the differential correction signals. NDGPS is now operational with single-station coverage on about 85 percent of the land area of the U.S. To ensure continuity, accuracy, and reliability, NDGPS is managed and monitored 24 hours a day, seven days a week from the Coast Guard's Master Control Stations at Alexandria, Virginia, and Petaluma, California. NDGPS signals are available to any user who acquires the proper receiver.

Requiring PTC where justified. FRA has authority under the former Signal Inspection Act (now codified at 49 U.S.C. 20501–20505) to require installation of a signal or train control system where that is necessary in the public interest. This authority has been used by FRA and its predecessor agency (the ICC) to address specific needs primarily related to the safety of rail passenger service. In 1998, as a part of the preparations for enhanced service on the Northeast Corridor (NEC), FRA ordered Amtrak to implement the Advanced Civil Speed Enforcement System (ACSES) on the NEC between Boston and New Haven and in high-speed territory south of New York City. ACSES, which was implemented beginning in October of 2000, supplements the existing cab signal/automatic train control system on the NEC, providing full PTC functionality in support of operations up to150 mph. In late 2001, New Jersey Transit (NJT) began progressive implementation of an ACSES-compatible system on its property by activating the system on an initial line segment.

ACSES and the NJT system are primarily overlays on traditional signal and train control technology, filling gaps that the older technologies cannot address. For instance, existing ATC systems cannot enforce a stop at a signal (although they can ensure that the train slows to 20 mph approaching the signal). Nor can ATC enforce permanent and temporary speed restrictions along the railroad related to curves, stations, bridges, and slow orders placed where track work is underway. ACSES and NJT's compatible system address these needs using a train location system that consists of a transponder and on-board transponder interrogator and computer. While this approach does not appear to be preferred for cost and maintenance reasons outside the NEC, it is well suited to support high density passenger and freight operations within that territory, given the existing signal and train control infrastructure and the predominance of traffic that is limited to the NEC and immediately associated lines.

In summary, a wide range of actions are being taken to deploy PTC, but much remains to be done. Although I am heartened that several freight railroads are exploring additional PTC technologies beyond those I have described in this statement, I am concerned that the industry's commitment to interoperability of systems has not yet yielded comprehensive industry standards. Further, much of the electronic hardware now being deployed on locomotives for various purposes is not known to be forward-compatible with PTC—another objective recognized by the RSAC. I am troubled that the four major freight railroads are often unable to agree among themselves on relevant issues within industry councils, and I am also concerned that the fragility of Amtrak as a leader in the passenger field may inhibit its ability to progress technology. The reluctance of major suppliers to commit capital to system development, given the history of advanced train control systems, is a further cause for concern.

Advanced train control providing PTC safety features was supposed to be the legacy of the 1990s, and so the future is overdue. We will continue to prepare the way for PTC deployment, chastened by the hard realities but also convinced that this technology will be essential for safety, security, and the economic and environmental health of the Nation as we progress through this first decade of the new millennium.

Grade Crossing and Trespasser Safety

Grade crossing and trespasser incidents account for about 95 percent of all deaths related to train operations. Yet FRA's regulatory and enforcement authorities are of limited value in addressing these two areas. Significant improvements on these subjects are more likely to result from effective and intensive educational efforts directed at potential victims of these kinds of incidents, aggressive enforcement of state and local laws concerning motorist responsibilities at crossings and access to railroad property, funding for physical improvements that reduce the likelihood of mishaps, and productive research on technological solutions and behavioral factors.

Substantial improvement of the grade crossing picture has occurred through just these sorts of methods. Grade crossing deaths were down 40 percent in 2001 from their level in 1990, even though exposure has risen due to increased highway and rail traffic. Operation Lifesaver®, Inc., and similar educational initiatives have

spread the message to motorists that ignoring grade crossing warning devices, whether passive or active, is flirting with disaster. FRA field forces, especially our Regional Grade Crossing Safety and Trespasser Prevention Managers and Assistant Managers, are actively engaged in these efforts in communities across the nation. We have worked with Operation Lifesaver® on a variety of public service announcement campaigns designed to raise awareness. One example is the Albertsons/FritoLay Rail Safety Contest that brought our safety message to 138 Albertsons Food Stores in the Pacific Northwest, including an announcement in the stores' weekly circulars that reach 3.3 million people. We have also persuaded the entertainment media and advertisers to withdraw commercials or other portrayals of unsafe behavior around railroad tracks. FRA has long partnered with state and local law enforcement authorities to encourage their aggressive enforcement of highway laws related to crossings. We have three part-time regional law enforcement officers to promote our National Law Enforcement Liaison program, now in its third year. FRA worked with Operation Lifesaver® in the production of a video aimed specifically at patrol officers and with state law enforcement training officials to develop a course on crossing safety and trespass issues. FHWA has been a partner of FRA and Operation Lifesaver® in many of these efforts.

Partnering with FMCSA, Operation Lifesaver®, and trucking associations, FRA has made concerted efforts to educate the drivers of commercial vehicles on the importance of highway-rail grade crossing safety. FRA was instrumental in having Operation Lifesaver® instruction included in the new driver training curriculum for Swift Trucking Company, one of the largest in the nation. This program will reach approximately 15,000 drivers each year.

Relying primarily on Section 130 funding made available by FHWA, most states have gradually upgraded crossing warning devices, especially at the state's most dangerous crossings. Since its inception in 1975, FHWA estimates the section 130 program has been responsible for the construction of 30,000 active crossing warning devices that helped prevent more than 10,000 deaths and over 50,000 injuries. Of course, scores of thousands of crossings still have only passive warning devices, and collisions continue to occur at crossings with fully operational active warning devices where motorists disregard the warnings. Supplementary safety measures (*e.g.*, traffic channelization devices or four-quadrant gate systems) that would prevent such behavior have generally not been installed. We work extensively with railroads and local communities to identify crossings suitable for closure because they are either redundant or no longer needed and to plan crossing improvements on a corridor basis rather than looking at each crossing in isolation.

FRA's regulatory authority can play some role. Our rule on maintenance, inspection, and testing of active warning devices (49 C.F.R. Part 234) helps ensure that those devices are fully operational and that railroads take proper precautions when the devices malfunction. We are working on a final rule on the use of train horns at crossings, attempting to achieve a risk-based balance between the need for the warning that the train horn provides (which protects drivers and train occupants) and the need for reasonable restrictions on train horn noise for the sake of residents near crossings. We are also working on a rule that would require a phased-in implementation of retroreflective markings on rail cars, which would help provide additional warning to motorists at night.

Making safety gains in the trespasser area presents great challenges. Despite the daily work of very aggressive railroad police forces, the railroad system is simply too vast to prevent trespassing along its entire length. While detection systems can be designed to detect actions by trespassers with evil intentions, the people who are dying rarely are tampering with railroad equipment and structures. Instead, trespassers are often on railroad property because it is convenient as a route to their home, employment, or recreational destination or, sadly, in some cases, because they intend to take their own lives. To target the people most likely to trespass, we are conducting a pilot project to develop demographic information on railroad trespassers based on railroad police reports. We can use this information to design audience-specific educational campaigns and enforcement.

FRA is funding a demonstration project in Pittsford, New York, that uses video cameras and motion sensors to detect trespassers on a railroad bridge. A verbal warning is issued to the trespassers, and the railroad and local law enforcement agency are notified as necessary. This installation has already proved effective when two teenagers were warned to get off the bridge and a train arrived one minute later. FRA is also working with Operation Lifesaver®, Transport Canada, and Direction 2006 (Canada's crossing safety and trespass prevention coalition) to provide a simple, easy-to-use, problem solving methodology to enable communities to effectively address trespassing issues.

Railroad Security

Security is a critical part of railroad safety. The events of September 11 focused FRA's attention on the need to address whatever security vulnerabilities may exist in the railroad system. Under AAR leadership, the rail industry has conducted its own assessment of those risks. FRA has retained a contractor to review AAR's work, which will help us to decide what action FRA may need to take in this area. We would, of course, coordinate any such action with the Transportation Security Administration (TSA), the new administration within the Department that has overall responsibility for transportation security among all modes of transportation, including rail and transit lines, and with the Department of Homeland Security, once it is established. Meanwhile, the increased awareness of security issues will cause us to bring such issues into sharper focus in our rulemaking projects. For example, threats to security that might prevent the proper functioning of a PTC system will need to be considered.

Furthermore, FRA is working in partnership with the FTA to assess the security of commuter railroads. FRA and FTA are jointly funding security risk assessments on the ten largest commuter railroad systems. FRA is also funding a similar security risk assessment for Amtrak. These security risk assessments are intend to identify potential security risks and appropriate security enhancements to mitigate those risks. We will also coordinate these efforts with TSA.

The Administration's Rail Safety Reauthorization Proposal

The Secretary has just recently transmitted to Congress the Administration's proposal for reauthorization of the railroad safety program. Authorization for the program expired at the end of fiscal year 1998. Our proposed legislation would reauthorize this important safety mission for four years. The bill proposes other measures that would significantly advance railroad safety, primarily by enhancing the Secretary's authority to gather information that will help to assess and reduce or offset hazards at highway-rail crossings. The bill would also underscore the Secretary of Transportation's duty, when issuing rail safety regulations or orders that affect the security of railroad operations, to consult the Secretary of the department having responsibility for transportation security under the Aviation and Transportation Security Act if those responsibilities are transferred outside of the Department of Transportation.

The bill seeks to prevent highway-rail grade crossing collisions, which, as discussed above, cause about half of all rail-related deaths each year. The bill proposes a measure that would improve the Department's National Crossing Inventory (Inventory), a large computerized database containing vital safety information on the identification, location, physical characteristics, and other salient features of at-grade and grade-separated highway-rail crossings nationwide. The Department, as custodian of the Inventory, acts as a clearing house by combining the data supplied by both railroads and states into a uniform database. Many states rely upon this Inventory in making decisions about which crossings need better warning systems. As the only nationwide database that contains the characteristics of crossings, the Inventory is used extensively by the Department, states, railroads, and researchers for crossing safety studies. Currently, reporting to the Inventory by both states and railroads is voluntary; some information is missing, and some is very outdated. The bill would require that railroads and states make initial reports to the Inventory about new and previously unreported crossings and provide periodic updates for all crossings, so that the crossings can be accurately ranked according to risk. These improved rankings will assist states in identifying which of the crossings are the most hazardous and in channeling Federal safety improvement funds to the most hazardous crossings first.

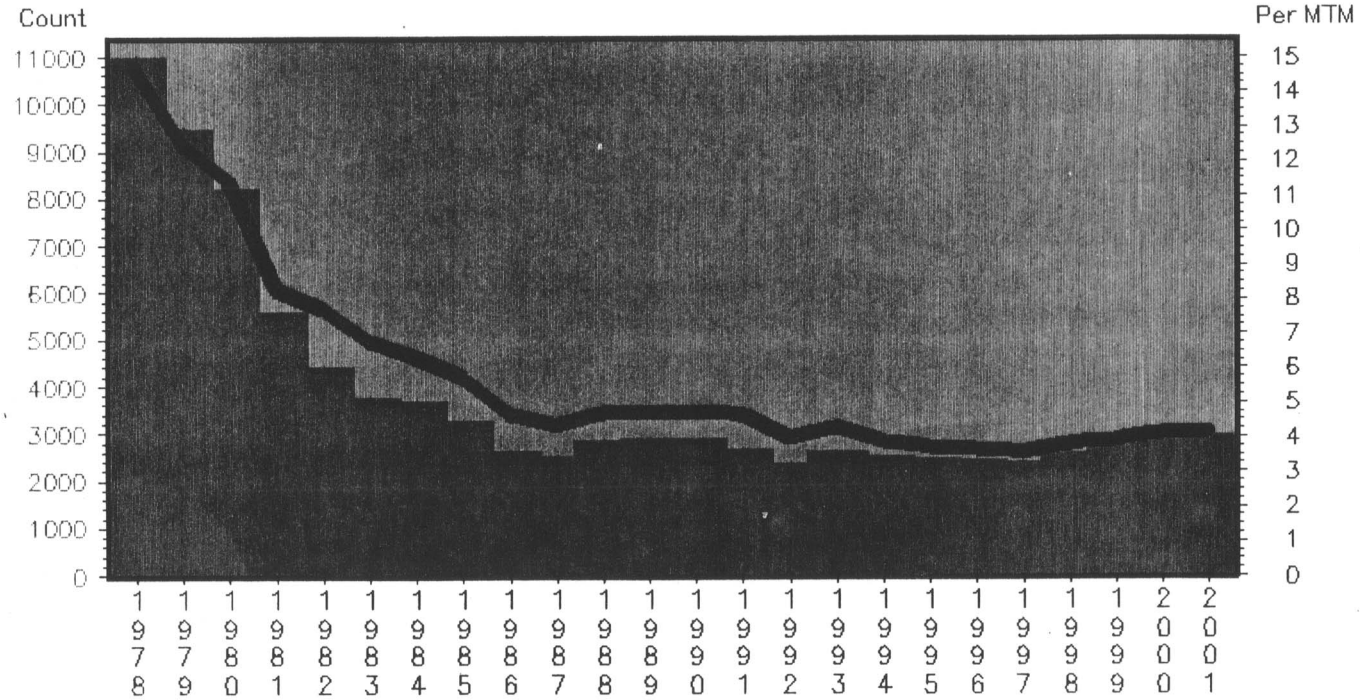
Other highlights of the bill include provisions that would make other necessary enhancements to FRA's delegated inspection and rulemaking authority. For example, one section would permit FRA inspectors to monitor a railroad's radio communications outside the presence of the railroad's personnel for accident investigation and accident prevention purposes, and to use the information received for such purposes except for release to a railroad carrier or as direct evidence of railroad safety violations. Another section would allow FRA, with the concurrence of the Administrator of the Environmental Protection Agency, to regulate noise emissions from the right of way due to the passage of a high-speed train at more than 150 miles per hour.

Enactment of the Administration's proposed bill would support FRA's efforts to address security threats to railroad operations, to reduce collisions at highway-rail crossings, and generally to reduce casualties and damages associated with railroad operations.

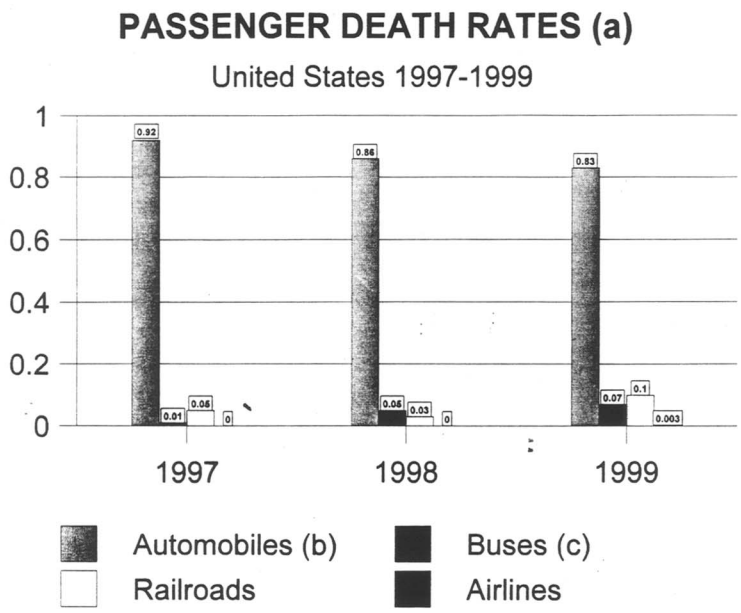
Conclusion

The recent railroad accidents of concern to the Committee must be fully examined for any lessons they can teach about future accident prevention. However, those accidents are not an indication of fundamental safety deficiencies in the railroad industry. While certain problem areas require concerted attention, the overall industry safety record is generally very positive, and FRA and its many safety partners work daily to make it more so.

TRAIN ACCIDENTS AND RATE, JAN–DEC



Bars represent counts, line displays rates. MTM = Per million train miles.



(a) Deaths per 100 million passenger miles.

(b) Drivers of passenger automobiles are considered passengers.

(c) Figures do not include school buses.

Source: National Safety Council, *Injury Facts, 2001 Edition*.

Senator BREAUX. Thank you, Mr. Rutter, and thank you for testifying, and Ms. Blakey, thank you for testifying.

Either one, on this first question. Ms. Blakey, you pointed out that there had been a number of recommendations, 50 or so open NTSB recommendations that are related to rail safety, significant ones, have not been implemented. I note in the proposed safety reauthorization bill the administration has presented, Mr. Rutter, that two of the issues that a number of people think are very important, and Ms. Blakey certainly referred to one with regard to the positive train control system, the PTC, and the issue of fatigue, that neither one of those seems to be, in my glancing at the reauthorization bill, even mentioned in the reauthorization bill.

The positive train control technology has been around since the 1990's, and yet you have a proposed reauthorization safety bill that doesn't even talk about it. How long do we have to wait until technology that is already out there is going to be incorporated in recommendations regarding safety? Ms. Blakey says that it is probably the most important single thing that can be done related to

head-on collisions between trains, and yet the reauthorization safety bill does not even mention it.

Mr. RUTTER. Well, those are two issues, and I will discuss them separately. First, with regard to positive train control, without mentioning that in the reauthorization bill that we have before us, we have been making and continue to make investments and progress in putting systems in place that can actually work and achieve the promise that I think the NTSB believes those systems can achieve.

Senator BREAUX. What does that mean? Ms. Blakey said there is no industry plans for positive train control systems at all, and the administration does not call for it in your legislation. You are giving me an answer that does not seem to be reflective of the real world.

Mr. RUTTER. Well, the real world is, we have invested significant amounts of money, and are investing right now, in working pilot projects to demonstrate how these systems can work in practical real world applications, specifically, Illinois. We, the State of Illinois, the Association of American Railroads, and Amtrak have all invested in excess of $60 million to put together an advanced positive train control system on a segment of the Union Pacific rail line between Chicago and St. Louis that will demonstrate how positive train control systems can actually work and will find out ways of making sure we can develop interoperability standards so that we can come up with overall architectures, so the different systems can be provided by suppliers to make these systems work for different carriers.

Senator BREAUX. The point I am making is that I perceive that it sounds like you are in a testing mode. How long has the positive train control system been on the recommendation list of the NTSB, how many years? Since 1990.

Ms. BLAKEY. 12 years now.

Senator BREAUX. 12 years, and yet I get from you that you have started looking at it and testing it, and they have been recommending it for 12 years, and yet your bill does not even mention the word.

Mr. RUTTER. Well, that is in large part because we are in the process of making sure that these systems can actually work. While there are different elements of technology that make positive train control possible, integrating all of these technologies into a practical working system is essential. There is not an off-the-shelf system that can deliver the entire gamut of positive train control solutions. That is what we are trying to put in place so that we can, by making those happen, demonstrate the lessons that can be learned and then applied toward wider spread distribution of those systems throughout the industry.

Senator BREAUX. Well, my own thought is that you are way too late on the recommendations. Ms. Blakey says it has been around for 12 years, and there is not even a recommendation in the authorization bill that addresses this.

The only other point I would make is that in my reading of the reauthorization bill, the NTSB has been recommending we address fatigue more seriously. There is an example of fatigue right there.

I do not see anything in the reauthorization bill that specifically tries to address the question of fatigue among railroad engineers, and why is that not there?

Mr. RUTTER. Well, that was a conscious decision. Previous approaches or attempts to get a rail safety reauthorization bill that had been made by the administration in prior years, two years, both 1998 and 1999, involved a fatigue management plan and program. The whole issue of hours of service and fatigue management gets to the heart of what it is to work. How often do you show up, how often are you scheduled, how long may you work, how often may you go to work?

Because those questions are that fundamental, there has been an inability for both rail labor and management to agree on what the best solution is, and therefore all previous rail safety initiatives have bogged down on those issues. It was our intention to try to get a reauthorization of our basic rail safety program, which has been in place since the agency existed in 1970. In the interest of getting the basic structure of our rail safety program implemented, we had wanted to get something that would not be associated with that kind of controversy.

That being said, we continue to push for fatigue management plans throughout the industry, and are very encouraged by work/rest agreements that have been entered into through the collective bargaining process by both rail labor, both specifically UTU and BLE, and rail management. Unfortunately, though, while both the supervisors and managers of both rail labor and management have agreed to that, actually putting those agreements in place at the local level has proven more troublesome, or more problematic.

We continue to push toward those voluntary collective bargaining agreements that will reach better scheduling, more regular scheduling, and get to the point where fatigue management plans, more than just regulation of hours of service, are an integral part of both how employees go and do their jobs and how rail management supervises those jobs.

Senator BREAUX. I appreciate that, and my time is up, but it seems to me that what you are basically saying is because it is controversial we did not want to touch it. It is not in the bill as a result of that, and the two biggest recommendations, something on fatigue and on positive train control, neither one of those important issues are touched in the reauthorization recommendations on safety. I find that very deficient.

Senator Hollings.

The CHAIRMAN. Thank you, Mr. Chairman.

With respect to the airport and airways improvement fund, providing some $14 billion, we are still shy $1.1 billion in this fiscal year that had to come from general revenues, so with respect to subsidy, let us say we subsidize the airlines $1.1 billion in this regard, whereas we only appropriated some $521 million to the rails, so that is double the amount of subsidy there. Otherwise the $15 billion was all emergency, without any fees.

So I make the point again and again that we have this penny-ante nit picking auditing, making requirements and knowing that the predictions are not going to work. There is no fortune teller necessary to realize it is not going to work. It has been a disaster

for 30 years, specifically when you say, Ms. Blakey you said safety recommendations that were not implemented. Can you flesh that out for the Committee? Some of them you say for a decade have been made, safety recommendations for a decade, and still yet to be implemented. Tell the Committee. Give us a general picture.

Ms. BLAKEY. When you have over 40 recommendations open to the Federal Railroad Administration, and many of these are also open to the railroads as well, there is a complex group out there. Just to give you the broad picture, positive train control, as I say, is the most important one, because it very much speaks to Chairman Breaux's point about fatigue, and also about human error.

No matter what we do in this system, people are going to make mistakes, and if we have positive train control out there we have a technology that prevents those collisions, and it is critical, and that has been open for 12 years.

We also have a number of open recommendations on the issue of fatigue across all modes of transportation. We do understand the progress that is being made in terms of fatigue management plans. We really do get that this is a complex labor management issue. At the same time, the hours of service regulations are antiquated. They do need to be governed by a more scientifically based approach, and those regulations do need to be revised.

Finally, I would simply mention track-related issues, because there are a number of issues that go to the way the railroads are managing their track, issues such as plugs, for example. When you put in a temporary plug to repair a track, that needs to be monitored closely and replaced with permanent track quickly. We have had accidents that could have been prevented if they had been on top of this, and certainly on top of inspections, particularly on those routes that are carrying high passenger traffic and that are carrying hazardous materials. We think those deserve a greater degree of inspection and oversight.

So that gives you some idea of the issues that we see out there at this point.

The CHAIRMAN. Well, on the track-related accidents, or the plugs you talk of, it comes to mind that there are some 22,000 miles of track, and the Federal only has about 750 of that, the freight rails own and control, some 21,000. Are we on top of that? Who is responsible? Is Amtrak responsible for that track, generally speaking, or is the freight companies? When the plug is not administered properly and safeguarded, who do you go after?

Ms. BLAKEY. In those cases, that track is owned by the freight railroads, and they are the ones responsible for it, with oversight from the Federal Railroad Administration.

The CHAIRMAN. How is that happening? You say most of them are track-related accidents. It seems like we have got to have a better system for getting on those freight railroads. Would you not agree?

Ms. BLAKEY. I would agree that certainly there needs to be a greater degree of attention paid to the track problems we have across the country. A lot of that is with the freight railroads. I think we also need to have a high degree of scrutiny from Federal inspectors, particularly in those areas where, we have got the greatest risk.

The CHAIRMAN. What about the terminals themselves like Penn Central? Everybody is talking about the two that we unfortunately lost at the air counter out there in Los Angeles. It happened in the last several months, twice into Penn Central a terrorist could have gotten way more walking into Penn Central and wandering into the air terminal. They are talking about putting them out on the sidewalk and all.

What about the terminals? Do you figure your folks are responsible for terminal safety as well as track safety?

Ms. BLAKEY. The embarkation and de-embarkation points are critical, and some of our recommendations do go to issues of the stations and how that is handled from time to time. We do not have any current recommendations that are speaking to Penn Central particularly.

The CHAIRMAN. Who would have some recommendations? Who is in charge? Let us assume the counter at the Penn Central Station, two people are shot there instead of out at the airline terminal, then who would I come to and fix the responsibility for safety violations, if there were any?

Ms. BLAKEY. The new Transportation Security Administration has oversight from a security standpoint for the rail area, as well as all of the other areas of transportation.

The CHAIRMAN. You do not?

Ms. BLAKEY. We do not. We really look at safety as a pure issue, and when it gets to security, if there is criminal intent involved it is usually the FBI working with the Transportation Security Administration to fix it.

The CHAIRMAN. Well, we passed rail safety legislaton before Christmas, and it has yet to be called for consideration.

Thank you, Mr. Chairman.

Senator BREAUX. Thank you, Mr. Chairman.

Senator McCain.

Senator MCCAIN. Thank you, Mr. Chairman. For the record, the $1.45 billion for the subsidy for the airlines, which is $6 million passengers, works out to $2.30 per passenger. Under the Hollings bill proposal it would be $190 per passenger.

The CHAIRMAN. Not enough.

[Laughter.]

Senator MCCAIN. I certainly understand that philosophy.

[Laughter.]

Senator MCCAIN. That is one reason why you sit over there and I sit over here, Mr. Chairman.

Mr. Rutter, I want to ask you some really important questions here, because the last hearing we had on the whole issue of the future of Amtrak was very unclear to all of us. Amtrak received $100 million from the administration on July 3 and will need additional money to keep it operating through September, is that correct?

Mr. RUTTER. Yes, sir.

Senator MCCAIN. Do you know how much more money it needs?

Mr. RUTTER. We will be coming to the Congress in a matter of days. We promised to do that jointly with Amtrak under the terms of the loan agreement that was entered into last week and request up to $170 million.

Senator MCCAIN. And that would just be through September?

Mr. RUTTER. Through the end of September, yes, sir.

Senator MCCAIN. Another $170 million, roughly?

Mr. RUTTER. Up to that amount. Mr. Gunn, when he is up here, can probably explain a little better what he believes Amtrak might actually need out of that. The target of $170 million is pretty much where Amtrak's auditors have said that they would be looking to demonstrate a going concern.

Senator MCCAIN. Do you know why Amtrak was not able to—and that comes to $270 million—to get it right away, in total?

Mr. RUTTER. Well, in large part, we were able to do $100 million on our own because that is what we believed we had legal authority to do under the current RIFF program, which is capital-specific. The more we looked at it, the more we were bound to fund capital projects on a going-forward basis, not those looking back.

We will be coming to the Congress, as I said, in a matter of days with a proposal to give us the legal authority to make a loan in the amount to get up to that $170 million, so that it can be clear that we can finish that job, but as the Secretary said, the administration does not have legal authority to do that on its own.

Senator MCCAIN. The conditions of the loan require Amtrak to immediately stop all work on projects to expand service, but the terms of the agreement state that this requirement does not apply where Amtrak is obligated by an existing contract, and I note that Amtrak plans to use about $11 million on its high speed rail projects and another $5.1 million for Las Vegas infrastructure improvements, even though it does not currently serve Las Vegas.

Do you know how many commitments that Amtrak has made in the total exposure, and I ask this in the context that we have got a terrific problem of safety of tunnels in the Northeast? Do you see my point, the reason why I am concerned here?

Mr. RUTTER. Yes, sir, and I will be happy to get back to you on the full extent of how many of those capital projects are subject to contractual arrangements.

Senator MCCAIN. Could you submit that for the record?

Mr. RUTTER. Yes, sir.

Senator MCCAIN. It seems to me we have got like $1 billion in possible expenditures just to take care of the tunnels in the Northeast and make sure that they are safe, is that not correct?

Mr. RUTTER. Those are some of the estimates that have come out of the IG's office. It is for that reason that when Congress gave us that first $100 million, we were concerned to make sure that those dollars went to projects that could be completed and demonstrate safety benefits at the conclusion of those investments, as opposed to getting started on a down payment toward a full $900 million system.

Senator MCCAIN. I understand that, but if you have got a situation where you have not even started rail service, and you have got that contrasted with a situation where you have tunnels that have been judged potentially disastrous situations, should there not be some rearrangement of priorities here?

Mr. RUTTER. That is one of the reasons why we have been so focused on making sure that those investments on the tunnels happen as Congress intended them to do, and those dollars be set aside specifically for those uses.

On the issue of the Las Vegas service, I will be happy to get back to the committee on the record as to the nature of those contracts that Amtrak believes it is bound by, and what those investments are going toward, because it involves not only Amtrak but the owner of that infrastructure.

[The information referred to follows:]

The Department of Transportation believes that its information on the specific commitments may be incomplete since Amtrak does not, as a routine matter, provide the Department with copies of these agreements. Amtrak is still working on which of its projects will need DOT approval under the terms of the loan agreement. In particular, Amtrak has not shared with us any conclusions about the Las Vegas project to date. I wish, therefore, to defer the response to this question until I have had an opportunity to compare FRA's current information with that of Amtrak.

The high-speed rail project-related activities funded under the loan agreement involve a number of existing and well-established infrastructure improvements to the Northeast Corridor and do not expand the existing scope of Amtrak's high-speed operations. With regard to Amtrak's involvement in high-speed rail efforts outside the Northeast Corridor, Secretary Mineta was very clear in his statement on the future of passenger rail service that there is a need to de-link the future of passenger rail currently provided by Amtrak from State-based efforts to develop highspeed rail on selected intercity corridors. The latter is more appropriately addressed by establishing a long-term partnership between the States and the Federal Government to support improved intercity passenger rail service.

Senator MCCAIN. My time is about to expire, but it seems to me that we had better establish some priorities here, and I think it is pretty clear what some of those priorities are. I say that as a person who does not represent the Northeast, but there are some very serious situations that have been identified since September 11, and I would think that would get some priority.

My time is about to expire, but the loan agreements suggest Amtrak is prohibited from incurring additional debt while the loan is outstanding, correct?

Mr. RUTTER. Yes, sir.

Senator MCCAIN. Yet it states that Amtrak may incur indebtedness in connection with the purchase of assets used in the ordinary course of business. I assume this could cover passenger equipment, locomotives, or just about anything else needed to run trains and stations. What protections does this provision really provide, then?

Mr. RUTTER. Well, we were mainly concerned Amtrak would not enter into additional debt agreements to provide for operating capital. We wanted to control things like the Penn Station financing that happened last summer.

Senator MCCAIN. Finally, how soon can we expect Amtrak reform legislation from the administration?

Mr. RUTTER. Most of those reforms we are looking at in two tranches. The first is what can be done in the fiscal year 2003 appropriations cycle. If Congress is contemplating spending up to $1.2 billion for Amtrak, those dollars should be accompanied by a series of reforms to address the fundamental issues that have gotten Amtrak to the financially troubled status that it is in. We hope to have specifics on those reforms that we will be seeking in fiscal year 2003 in a week or so, because frankly the appropriators will be marking up their bills in that kind of timeframe.

As for longer term reauthorization, right now we are focused on those first two immediate needs, how to finish the job that we started with the $100 million, and then what to do about getting

a fiscal year 2003 appropriation that accomplishes some of the movement toward the vision for passenger rail that the Secretary has outlined.

Senator MCCAIN. Well, Mr. Chairman, if I may say that I am a little concerned about the lack of specificity of the proposals, because if we just leave it to the Appropriations Committee again we bypass the authorizing committees, but I hope that we can have some reform proposals soon so that they can be considered by all Members.

Thank you, Mr. Chairman.

Senator BREAUX. Thank you, Senator.

I have just one follow question for Ms. Blakey and Mr. Rutter. We have worked on port security legislation requiring every port to have a security plan which specifically addresses security concerns at each individual port, coordinated by the Coast Guard with other people being involved.

Mr. Rutter, your testimony indicates one of the greatest increases in loss of life and accidents have been individuals who are illegally within the terminal facilities of railroads, or Ms. Blakey, maybe you pointed it out, one of you did, about the accidents that occur with people who should not be there. I am concerned that the potential for terrorist activities within these terminal facilities taking over a train. Do we need a security plan for railroad terminals and operations like we have for port facilities? Can either of you comment on that?

Mr. RUTTER. Well, the FRA, working in conjunction with the Transportation Security Administration, is currently in the final stages of a review of a security assessment that has been prepared by the Nation's railroads themselves to try to adopt security measures, or ensure that security measures are taken, where the most vulnerabilities exist. Certainly, on the passenger side, terminals and places where many passengers are pose some threats, or at least some potential for risk, and we are working with owners and operators of those facilities, most of which are public entities, and we are working in concert with the Federal Transit Administration to develop standards for making sure that those open facilities are protected as much as possible.

Senator BREAUX. Ms. Blakey, do you think that is sufficient?

Ms. BLAKEY. Well, there are over 500 deaths a year, and that is 500 people where they should not have been, certainly, and a significant number were in the terminals. The AAR has briefed us on their planning and security. I think that the effort that they made is impressive. That said, I do not have the specifics at this point on the terminal security arrangements and would certainly like to know more about that.

Senator BREAUX. I thank both of you. If we have follow questions, Ms. Blakey, Mr. Rutter, we will be back in communication with you. Thank you.

I would like to welcome up our next panel of witnesses and ask them to take their place at the witness table. Mr. David Gunn, president and CEO of Amtrak, Mr. Ed Hamberger, president and CEO, Association of American Railroads, and Mr. Don Hahs, international president of the Brotherhood of Locomotive Engineers.

Gentlemen, we welcome you, and we are pleased to have you appear before the Committee, and Mr. Gunn, we have you listed first. If you would like to go ahead and begin, we would be pleased to take your testimony.

STATEMENT OF DAVID GUNN, PRESIDENT AND CEO, NATIONAL RAILROAD PASSENGER CORPORATION

Mr. GUNN. Good morning, and thank you for inviting me here today. I have been in the railroad business for nearly 40 years, and the number 1 priority has always been safety wherever I have worked, safety for the passengers, employees, for the trains and facilities, and my view is, if a railroad is not safe, it should not be in business.

In the interest of time, I would like to submit my formal statement which details a number of important safety statistics and highlights some of the initiatives we have taken to provide a safe operating environment at Amtrak, and submit that for the record. Then, having said that, I would like to make a few brief comments on my approach to running Amtrak.

Notwithstanding the recent tragedy in Florida involving the Auto Train and other well-publicized incidents, there are a number of basic indicators that suggest Amtrak is maintaining a high level of rail safety. Comparing the year-to-date data for fiscal 2002 in the same period for 2001, we have achieved a 22 percent reduction in passenger injuries and 11 percent reduction in employee injuries, 20 percent fewer grade crossing accidents, and about 7 percent fewer operating rule infractions.

As you know, I have been on the job less than 2 months, but I do believe that Amtrak is a safe operation, and that its employees are dedicated to safety, and I base this not just on statistics, but many hours that I have spent out on the railroad riding trains meeting and talking to employees, and my sense is that there is a really professional work force that is well-trained and dedicated to doing the job properly.

In April, we did see an increase in operating rule infractions, which is unacceptable. In response to this increase, our safety department organized nearly 10,000 efficiency tests on nearly 2,900 engineers, conductors, train dispatchers, and block operators on 17 safety-critical operating procedures. These activities were done in conjunction with representatives from the FRA and host railroads, and were performed around the clock in many locations across the country.

The monthly average of operating infractions last year was 14. This year, the monthly average is 12. During the month of June, we reduced the number of operating rule infractions to 11, but we are still working hard to bring that number down even lower.

Let me now speak for a few moments on my approach and our priorities for running this company. I have run larger organizations than Amtrak that were in trouble, but I do not recall in nearly 40 years of service taking the reins of a company with such immediate and significant problems. That said, Amtrak will improve its performance.

Now, my permanent home is on Cape Breton Island in Nova Scotia, and I do get newspapers out of Halifax and Toronto. I do not

get the American papers when I am home, and even with just that source of information I knew last summer that Amtrak was in deep trouble. When you have to mortgage a busy station just to make payroll, you are only a step or two away from financial disaster.

I mention this only because I want you to know that I accepted this job with my eyes open. I knew we faced serious problems, maybe not as serious as they are, but I knew they were there. Unfortunately, the plant and equipment for the most part suffers from years of neglect. Deferrals of maintenance and elimination of heavy overhauls to meet budgetary goals has resulted in a multitude of problems.

In addition, we have nearly 100 cars and locomotives in heavy wreck or repair status, the majority of which are our newer cars used on long distance trains. With a fleet of 1,500 cars, that means approximately 1 in 15 cars are out of service, and some of which have been so since the early nineties, and this is unacceptable, and it must change. It is having a significant impact on our ability to serve our customers.

I have some very basic core beliefs about the railroad business, particularly in the operation of passenger service. First, I cannot imagine a country such as ours without a national passenger railroad system. Second, no passenger rail system in the world operates without some form of Government investment. We should not fool ourselves into thinking that Amtrak is somehow different than every other system around the world. This means Amtrak will a) never be profitable, and b) it will always need, just like every other mode of transportation, some form of public investment or subsidy.

Right now, the most important thing I can do for Amtrak and for our partners and for you is to bring stability to our operations. That is my basic, overarching goal for the next 15 months, and to do this, I will go back to basics. First, we will establish a very straightforward, transparent, understandable, zero-based budget process to set goals and control expenses. We will streamline the corporate structure. It will be leaner, and it will look more like a railroad, thus reducing overhead and establishing clear lines of authority and responsibility, i.e., you get accountability.

We intend to repair and overhaul as much equipment as we can within budget constraints to support our national system. We will make critically needed capital investments on existing infrastructure, our infrastructure. We will build a strong management team, and I will not rely on outside consultants. Everything we do will be to improve and strengthen or bring efficiencies to what we operate today. I will not take on any new growth or activities that do not serve this and/or which increase our deficit.

Let me say a few words about our recent agreement with the administration to secure a $100 million loan. First, I want to compliment the Secretary, the DOT Secretary and the Deputy Secretary, Michael Jackson and FRA Administrator Allan Rutter, who negotiated in good faith and worked closely with us in bringing about this loan. As you know, our forecasts indicate that we will have a $205 million cash shortfall by the end of this fiscal year. As you also know, I believe, Amtrak had planned a line of credit of $270 million for this period. In other words, the line would be 270, the drawdown would be 205. Those are the two numbers.

Unfortunately, the inability for us to secure a final audit—in other words, we had trouble closing our books—prevented access to this line of credit and resulted in the threat of a shutdown due to a lack of cash by mid–July. With virtually all internal remedies exhausted, we asked the DOT for their help in securing, either through a supplemental appropriation, a loan, or a loan guarantee, the $205 million needed to get through 2002. As you know, after many hours of negotiation, we received a $100 million loan with a series of contingencies attached to it, and which basically required us to have a more aggressive approach to finding additional and meaningful savings.

The $100-million loan is enough to keep the trains running through early August. The best solution at this time would be to receive the $205 million in the form of a supplemental appropriation, which would reduce the amount of debt that we are incurring, and would pay back the loan of $100 million once the fiscal 2003 funding levels are set. In any event, I want to reinforce that the $100 million we received will not be enough to get us through to the rest of the fiscal year.

One of the most unfortunate effects of Amtrak's cash crisis is the effect this has on our commuter and State partners. While this is clearly a difficult and agonizing process for us at Amtrak, the situation is particularly painful for the States and organizations, some of whom have paid us in advance for Amtrak to be a reliable operating partner. I am going to have to work hard to mend fences.

Let me conclude by saying that while all our focus has been to resolve the immediate short-term cash crisis, we have begun the fiscal 2003 budget process, and to that end I cannot emphasize how important it is for Congress to fully fund Amtrak's $1.2 billion request for fiscal 2003. Keep in mind that the first thing we will have to do when we get that money back is to pay back any loans. This level of funding will allow us to begin the work that I have outlined in my testimony and start to rebuild the railroad.

Finally, I want to assure you we will look at every route and service we operate to improve efficiencies and cost recovery. While it is true that most of our trains lose money and many always will, I have every belief that they can be run more efficiently and there are opportunities for cost reduction. I believe that it is a much more achievable and realistic goal, i.e., cost reduction, than the goal of pursuing self-sufficiency.

It is my hope that Congress, the administration, and Amtrak will grapple with and hopefully come to closure on some of the larger fundamental issues that we need to resolve about the level of rail passenger service and how we pay for it. Unless or until that occurs, we will always be living on the edge. Therefore, I reiterate the importance of our budget request of $1.2 billion for next year, and to begin the work to resolve these larger fundamental questions. It is my belief you will see significant, positive changes in the year ahead, better equipment, investment in infrastructure, a leaner organization, and an open, straightforward approach.

As I told the subcommittee a few weeks ago, we will build a better railroad, and happily leave the politics to you.

Thank you.

[The prepared statement of Mr. Gunn follows:]

PREPARED STATEMENT OF DAVID GUNN, PRESIDENT AND CEO, NATIONAL RAILROAD PASSENGER CORPORATION

Mr. Chairman and members of the committee, thank you for the opportunity to appear here today. My name is David Gunn, and I am President and Chief Executive Officer of the National Railroad Passenger Corporation (Amtrak). I have extensive experience in the rail industry, spanning over 38 years. In this business, you have to be committed, everyday and in everyway, to safety. At Amtrak, the safety of our passengers, employees and communities that we travel through is of the utmost importance. If you are not committed to safety, you have no business running trains.

In my testimony this morning, I'd like to give you some context and insights into Amtrak's safety programs, our record and our major concerns.

To begin with, I want to emphasize that *the safety of all passengers, employees, trains and facilities is our number one priority*. As the operator of our national passenger rail system, Amtrak has a strong safety record. But of course, when it comes to safety, one must never be satisfied with the status quo. That's why we are constantly studying every aspect and taking every step that's necessary and feasible to ensure greater safety.

As you know, the railroads in this country were originally financed and built primarily by private interests, and for the most part these companies retained ownership of the tracks when Amtrak was created in 1971. Today about 97% of Amtrak's 22,000-mile system—and about half of our daily trains—is operated over tracks that are owned and maintained by private freight railroads. Amtrak owns about 730 route miles of railroad, primarily between Boston and Washington, DC, and some in Michigan. Across the rest of the country, we rely heavily on our partners in the freight and commuter railroads to provide a safe operating environment.

Notwithstanding the recent tragedy in Florida involving our Auto Train and other well-publicized incidents, there are a number of basic indicators that tell me that Amtrak is maintaining a high-level of rail safety. Comparing the first eight months of FY'02 to the same period in 2001, we have achieved a 22% reduction in passenger injuries . . . a 11% reduction in employee injuries . . . 20% fewer grade-crossing incidents . . . and about 7% fewer operating rule infractions.

These are encouraging numbers and trends. But as I said, we can and must do better. Amtrak and its industry partners are constantly seeking ways to improve our safety performance.

As we look at operating rule infractions, they tend to fall into two categories: those that occur in fixed facilities like stations, yards and shops, and those that occur on the main lines. The majority of Amtrak's operating rule infractions occur in yard-related equipment moves and involve violations of procedures such as running through improperly lined hand switches in a yard, failing to stop short of an obstruction in a yard, or failing to secure equipment properly. These are minor infractions, but they have the potential to cause serious problems, so we focus a great deal of energy on preventing them.

We measure and report these infractions on a monthly basis, and if you look at the last three years, there has been steady improvement. For example, if you compare the first nine months of this year to the same period in previous years, you'll find that operating rule infractions dropped from 123 in FY 2000, to 118 in FY '01, to 110 this year. The monthly average for the entire year in the last two years was just shy of 14, and the average so far this year has been about 12.

Despite our overall record of improvement, in April of this year we recorded an increase in operating rule infractions, which was unacceptable. In response to this increase, our Chief Operations Officer organized a national operating rules awareness blitz for transportation department employees in May. Field supervisors conducted nearly 10,500 efficiency tests on nearly 2,900 engineers, conductors, train dispatchers and block operators on 17 safety-critical operating procedures. These activities were done in conjunction with representatives from the FRA and host railroads, and were performed around the clock in many locations across our system for a solid week. The safe operation of our trains whether they be in yards or on the mainline is one of our management goals.

In the month of June, we reduced the number of operating rule infractions to 11. But we're still working hard to bring that number down even further. In the month of June, we conducted a similar blitz for mechanical department employees, and in July, we will do a blitz in the engineering department. We will continue to remain vigilant in all areas of our operation to reduce operating rule infractions.

In an effort to prevent grade crossing accidents, Amtrak and the rest of the railroad industry participate in public education and enforcement campaigns through Operation Lifesaver. This program, now entering its 30th year and reaching 49

states, is a joint effort of the Railway Progress Institute, Amtrak and the freight railroad industry, and it has assisted in achieving a 70% reduction in grade crossing fatalities since 1972.

Mainline passenger derailments occur infrequently, but of course we are very concerned about them because they can result in serious injuries and deaths. For example, the Auto Train derailment in Crescent City, Florida, on April 18 claimed the lives of 4 people and injured 150. All of us at Amtrak extend our deepest sympathies to the families of those who were lost and injured. The cause of this derailment is still under investigation by the National Transportation Safety Board. What I can say, though, is that train travel is a very safe mode of transportation, and we will not rest as long as there are opportunities to improve our performance.

Moving to another issue of concern, train crew fatigue is one of the most difficult challenges facing the entire railroad industry. Amtrak is governed by—and adheres strictly to—guidelines set by Congress on train crew hours of service. Fortunately, Amtrak runs a scheduled system with scheduled relief days, which allows employees to adequately manage their lives to avoid fatigue. In addition, Amtrak provides fatigue-prevention education to all locomotive engineers as part of their initial certification training, and again when they seek re-certification. Working with the freight railroads, the AAR, the FRA, and our rail labor unions through the North American Rail Alertness Partnership (NARAP), we are exploring ways to go further in mitigating and preventing fatigue.

In our constant efforts to improve safety and reliability, Amtrak employs various train control systems. For example, all Amtrak-owned main lines have highly reliable systems that automatically apply a train's brakes if the engineer fails to respond to a signal change. On the Northeast Corridor, we are phasing in an Advanced Civil Speed Enforcement System, called ACSES, which will enforce stops at interlockings and control points, as well as all FRA speed limits. We have just instituted a similar system on our Michigan line, enabling the first significant increase in sustained passenger rail speeds above 79 miles per hour outside the Northeast in 20 years. Amtrak is also involved in the North American Joint Positive Train Control Project, in which the entire industry is looking for a practical, cost-effective way to provide positive train control on rail lines where it is deemed appropriate. A demonstration project is soon to be implemented on Union Pacific trackage in Illinois, with major participation from the Illinois DOT, FRA and AAR.

Let me briefly raise another issue that I believe bears strongly on the safety of our Northeast Corridor Operations. Some have suggested that Amtrak's role on the Northeast Corridor be limited to operations and that maintenance and dispatching be done by another entity much like the recent reorganization of the British Rail in England. I believe this would pose serious safety concerns. Amtrak currently has the strongest incentive to ensure that the Northeast Corridor rail line is adequately maintained for high-speed rail operations—because it runs the trains! Indeed, Amtrak is the only operator of high-speed rail on the Northeast Corridor and has the only work force trained to maintain tracks for speeds up to 150 mph. Its operations and engineering employees report through the same organization, ensuring the communications and common budget that is essential to safe operations. These employees operate and maintain the nation's only high-speed service and do an extremely good job.

Amtrak also currently works very closely with the commuter railroads and freight lines that operate on the Northeast Corridor to ensure that the corridor is safe, reliable and adequately maintained. The safety record of the NEC is unparalleled. We manage to cooperatively dispatch a rail line with hundreds of daily trains—some 850 commuter and Amtrak trains operate through Penn Station in New York every day! We've been able to accommodate significant growth in commuter service and in our own Acela service. The perennial problem of funding—the corridor requires a minimum of $5 billion over the next ten years to upgrade the aging infrastructure—will not be fixed by taking maintenance responsibilities away from Amtrak. What is required is a dedicated funding source that will provide the long-term funds required for safe rail service on the Northeast Corridor.

In closing, let me assure you that we are vigilant and do everything in our power to maintain and improve the safety of our system throughout the country.

Thank you for the opportunity to provide this testimony, Mr. Chairman. I will be happy to answer questions.

Senator BREAUX. Mr. Hamberger.

STATEMENT OF EDWARD HAMBERGER, PRESIDENT AND CEO, ASSOCIATION OF AMERICAN RAILROADS; ACCOMPANIED BY: C.E. DETTMANN, SENIOR EXECUTIVE VICE PRESIDENT FOR SAFETY AND OPERATIONS

Mr. HAMBERGER. Thank you, Chairman Breaux. I appreciate the opportunity to be here to discuss freight railroad safety. Nothing is more important to the freight railroads than the safety of our employees and the communities in which we operate, and notwithstanding the impression you may have gotten from the previous panel, I would like to point out that working on a railroad is safer than working in a hotel, on a construction site, or in a grocery store. We have an enviable record of safety, and it is getting better.

Last year was the safest year on record for the ralroad with respect to employee injuries, and I am pleased to say that yesterday the FRA released its data for the first 4 months of 2002. Our injury rate has gone down 16.8 percent since last year, the safest year on record, and our accident rate is down 19.6 percent in the first 4 months of this year versus last year, so I think we are doing an outstanding job of protecting our employees and the communities in which we operate.

Number two, I would like to point out, and you may see on this chart that we are also safer than any other mode of transportation.

Third, the major portion of fatalities comes from trespassers and grade crossing accidents, and Chairman Breaux, to your question, the majority of those 508 trespassing fatalities were not in yards, they were along mainline tracks, outside of the yards.

Under the security plan which the AAR board adopted last December, we have tightened up access to our yards considerably. In fact, I cannot tell you the number of e-mails I have gotten from rail fans around the country complaining that they are no longer allowed to come in and take pictures and observe the operations in our yards, but that just cannot be allowed in the aftermath of last September.

Nonetheless, improving safety is an ongoing priority for the railroads. One way we are trying to do that is through technology. Currently, we are implementing a new program called InteRRIS, the Integrated Railway Remote Information Service, which is a series of wayside detectors, including acoustic detectors that can detect defects as the train goes by and report them. It is a predictive way, rather than a reactive way, of trying to prevent accidents rather than reacting to them after they occur.

Similarly, we have rail defect cars traveling to detect internal rail flaws, and track geometry cars that inspect track conditions, including alignment, gauge, and curvature.

We are also bringing new technology to bear on freight yards, where more than half of all train accidents occur. Miscommunication between employees on the ground and in the locomotive can be a problem. A new technology called portable locomotive control technology, or PLCT, allows the employee on the ground to operate the train, eliminating the possibility of misread hand signals or garbled radio communications. PLCT has been used widely in Canada and has been since the late 1980's, and Canadian National Railway reports accident rates in yards using this

technology are down 44 percent, while Canadian Pacific reports a two-thirds reduction in such accidents.

Another technology high on our agenda is positive train control, or PTC. PTC is designed primarily to prevent collisions, but let me point out that mainline collisions account for less than 2 percent of all train accidents, and have been reduced by 82 percent since 1980. Railroads, as NTSB Chairman Blakey has pointed out, have spent over $200 million to develop and test PTC.

The basic problem, however, is that PTC is extremely expensive and, contrary to conventional wisdom, the technology is not proven for a final fully integrated PTC system. In 1999, under the previous administration, a Rail Safety Advisory Committee submitted a report to the FRA which was then forwarded to Congress indicating that the basic PTC system would cost about $1.2 billion, a full system with all the bells and whistles would be about $7.8 billion, but the benefits would be far, far less. For the basic system there would be about less than $500 million in benefits; for the $7.8 billion system, there would be about $850 million in benefits, so we need to be careful about where we allocate our resources so that we apply them to the biggest problems.

Having said that, we are continuing our efforts to develop a PTC system. As pointed out by Administrator Rutter, we are cooperating with the FRA and Illinois DOT in spending over $70 million to try to prove the technology on the rail line between Chicago and St. Louis. The objective is to develop a system that is safer than current systems, interoperable among railroads— since we are one network—and cost-effective.

The last issue I would like to address is fatigue. Since 1992, we have worked with the Brotherhood of Locomotive Engineers and the United Transportation Union on the Work/Rest Task Force to look at fatigue issues cooperatively. Initiatives undertaken by railroads, working with labor, include assigned work and rest days, development of scheduling alternatives, permitting napping under certain circumstances, sleep disorder screening, improvements to crew rest facilities, providing predictable call windows, and fatigue education programs.

We have negotiated agreements with labor addressing fatigue at over 100 locations around the country. Together, labor and management continue to aggressively pursue a range of fatigue countermeasures.

We conclude by again emphasizing the importance railroads place on safety. With the resources that we devote to safety and with the cooperative programs in place with labor, suppliers, and the FRA, I believe we will continue to be the safest mode of transportation, and that we will see continued improvement in the future.

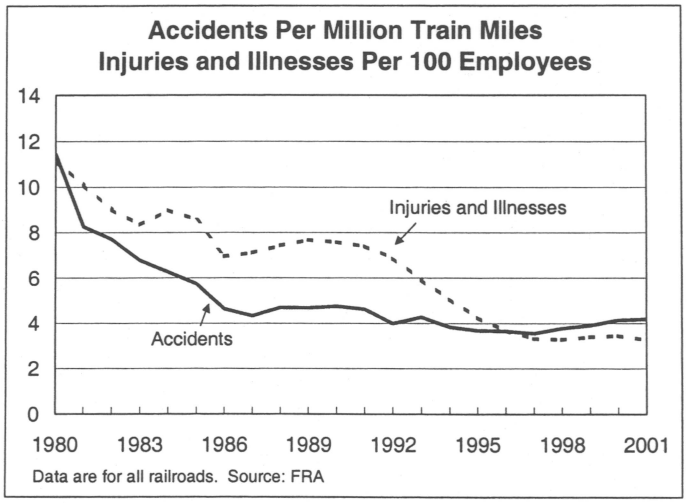
Thank you.

[The prepared statement of Mr. Hamberger follows:]

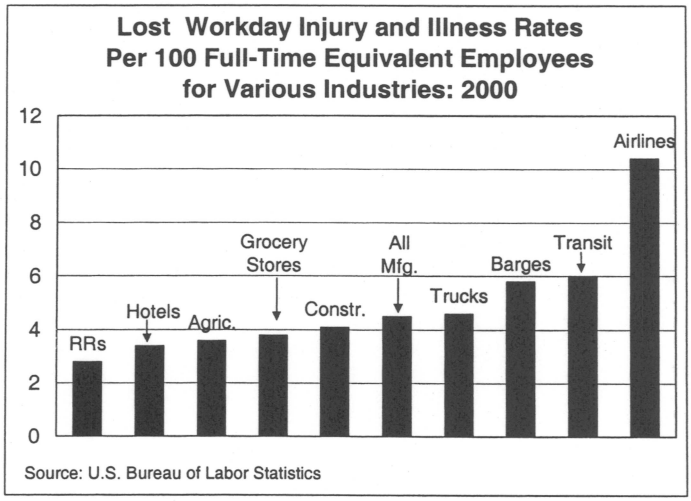
PREPARED STATEMENT OF EDWARD HAMBERGER, PRESIDENT AND CEO, ASSOCIATION OF AMERICAN RAILROADS

On behalf of the members of the Association of American Railroads, I am grateful for the opportunity to discuss the critical issue of freight railroad safety. Nothing is more important to our nation's freight railroads than the safety of their employ-

ees, customers, and the communities they serve, as will be demonstrated by the scope and intensity of the industry's safety efforts that I will describe today.



Railroads have achieved tremendous improvement in safety since the Staggers Rail Act of 1980 partially deregulated the industry. According to preliminary 2001 Federal Railroad Administration (FRA) statistics, the rail industry has reduced its overall train accident rate 64 percent from 1980 to 2001 and 12 percent since 1990. The rate of collisions (a subset of the train accident rate) was reduced 82 percent since 1980 and 40 percent since 1990. The rate of employee casualties has been reduced 71 percent since 1980 and 57 percent since 1990, and in 2001 was the second lowest rate on record.

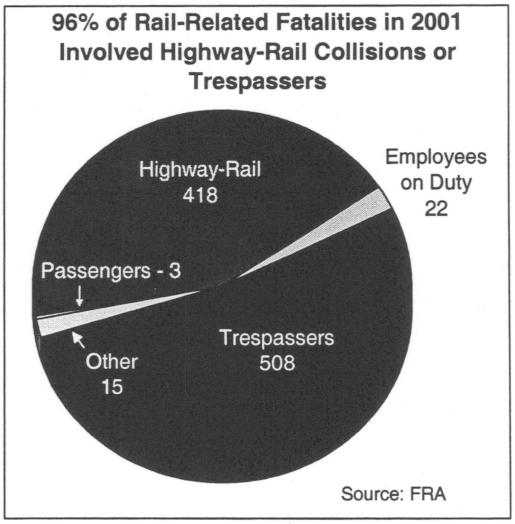


According to the Bureau of Labor Statistics, railroads have lower employee injury rates than other modes of transportation and, indeed, most other major industry groups, including agriculture, construction, and manufacturing. U.S. railroads also have employee injury rates well below those of most major European railroads. Railroads are also far safer than trucks. Rail freight transportation incurs an estimated one-fourth of the fatalities that intercity motor carriers do per billion ton-miles of freight moved.

These improvements have come about precisely because railroads recognize their responsibilities regarding safety and have devoted enormous resources to its advancement. Through comprehensive employee training; massive investments in infrastructure and technology (totaling $145 billion just in the ten years from 1992 to 2001); cooperative efforts involving rail management, rail suppliers, rail labor, and the FRA; collaboration with customers and communities; cutting-edge research and development; and steadfast commitment to applicable laws and regulations, railroads are actively and consistently at the forefront of advancing safety.

Railroads recognize, though, that more work remains to be done, and believe that government, management, and labor must work together to further improve rail safety. Several recent high profile accidents have brought renewed attention to the topic of rail safety, and over the past few years the train accident and employee casualty rates—while remaining at historically low levels—have leveled off. Below I will discuss several ways that railroads are working to improve safety and suggest steps we believe the government should (and should not) take to advance the cause of rail safety.

To start, though, it is important to recognize that the most critical safety problems faced by railroads are collisions at highway-rail grade crossings and incidents involving trespassers on railroad rights-of-way. In 2001, these two categories accounted for 96 percent of rail-related fatalities. Unfortunately, these incidents generally arise from factors that are largely outside of railroad control.



Due largely to railroads' and others' efforts to close crossings and to educate the public about the dangers of grade crossings, in conjunction with the Section 130 federal grade crossing program, the number of collisions, injuries, and fatalities at highway-rail grade crossings has fallen steadily over the years. From 1980 to 2001, the number of grade crossing collisions was reduced 70 percent, injuries declined by 70 percent, and fatalities were down 50 percent. Despite these impressive declines, far too many grade crossing accidents occur each year.

The vast majority of grade crossing fatalities are preventable because they are caused by a driver's proceeding through a crossing in error. Consequently, grade crossing accident prevention efforts have centered on improved warnings and educating the public about the life-or-death consequences of their actions at grade crossings.

The high cost of current active warning devices—approximately $150,000, on average, per installation—has limited the number of crossings at which they have been installed. Research into improved low-cost grade crossing warning systems is underway, but increased federal funding for highway-rail crossing hazard abatement would permit additional crossings to be protected immediately.

Under regulations implementing the federal grade crossing program, the responsibility for surveying highway-rail crossings, and prioritizing them for improvement according to the level of hazard, is accorded to the states. The decision of what type of warning devices to install at which crossings is made by the state (and approved

by the FHWA). Railroads provide information about train operations to support these decisions made primarily by the state's traffic engineering experts. This allocation of responsibility is appropriate because grade crossing warning devices are *highway* traffic control devices, there to protect motor vehicles, not trains, and because state highway officials, not railroads, possess the requisite data and expertise about traffic volumes and road building plans.

Railroads spend well over $200 million each year maintaining grade crossings, plus millions more on educational programs. They cooperate closely with state agencies to install and upgrade grade crossing warning devices and signals, and they (along with rail suppliers and the U.S. DOT) support Operation Lifesaver, a nationwide organization that educates the public about the dangers of grade crossings. Operation Lifesaver also has an educational program addressing the hazards of trespassing on railroad rights-of-way. In addition to increased dedicated public funding for grade crossing warning device installation and maintenance, railroads support the implementation of a comprehensive agenda of engineering, education, and enforcement actions so that further significant improvement in crossing safety can be achieved.

Beyond their efforts to reduce accidents at grade crossings and limit trespasser incursions onto their rights-of-way, railroads are engaged in an extensive range of activities designed to improve rail safety, many of which are outlined below.

1. Railroads are engaged in aggressive efforts to understand and respond to the issue of worker fatigue.

Work/rest issues have long been a major priority for railroads and their employees. In 1992, the AAR joined with the Brotherhood of Locomotive Engineers (BLE) and the United Transportation Union (UTU) to create the "Work/Rest Review Task Force" to examine the application of the Hours of Service Act, review work procedures, and identify ways to reduce rail employee fatigue and improve employee quality of life. The Task Force conducted studies of crew work schedules employing a database of over five million crew starts, and shared information on various efforts to address fatigue. It also provided a forum for rail labor and management to share information and ideas for new approaches to work/rest issues.

In 1998, the Task Force published a report entitled "Current Status of Fatigue Countermeasures in the Railroad Industry" that described the many initiatives addressing fatigue undertaken by rail labor and rail management. The report was updated in 2000 and is currently being updated again.

In 1999, Class I railroads, the BLE, and the UTU reached an agreement covering workplace fatigue. The accord provides for labor and management on each railroad to establish joint work/rest committees that would address the establishment of predictable rest days, the timing of duty calls, and the transportation of crews to their terminals after they have completed their maximum service under the Hours of Service Act.

The FRA, too, has been addressing work/rest issues. In 1997, the FRA, with rail labor and management, formed the "North American Rail Alertness Partnership" (NARAP), which focuses on fatigue education, including a study of the effectiveness of training.

In addition to industry-wide efforts, many individual railroads are working to identify and combat worker fatigue with work/rest committees and with scientifically-based programs such as CANALERT, a collaborative effort of the major Canadian railroads and their employees.

Thanks largely to extensive cooperation between labor and management, North American railroads have been aggressive in the practical application of fatigue countermeasures in the workplace. Initiatives undertaken by some railroads include changes in work schedules (*e.g.,* assigned work and rest days), developing scheduling alternatives in cooperation with labor, permitting napping by train crew members under limited circumstances such as where the train is expected to remain motionless for a minimum period of time, sleep disorder screening, improvements to crew rest facilities, returning crews home rather than lodging them away from home, running more scheduled trains and groups of trains, providing predictable calling windows, and fatigue education programs for employees and their families. The importance of education in this area cannot be overstated, since the value of these initiatives is highly dependent upon employee actions while off duty.

While evaluations of specific railroad programs have found safety benefits, railroads and employees are continuing their efforts to gain an ever-greater understanding of fatigue-related issues and are seeking innovative solutions. Key to the success of these programs is the flexibility to tailor fatigue management efforts to address local circumstances. Significant variations associated with local operations (*e.g.*, types of trains, traffic balance, and geography), local labor agreements, and

other factors require customized measures. Together, rail management and rail labor are aggressively pursuing a broad range of worker-fatigue countermeasures, and these efforts should be allowed to continue.

2. Railroads are actively pursuing reliable, cost-effective automatic train control systems.

For many years, major freight railroads and others have been researching the development and implementation of Positive Train Control (PTC) systems, mainly as a way to reduce the occurrence of train collisions. (Mainline collisions constitute about 2 percent of total rail accidents, and the Class I mainline collision rate has been reduced by 82 percent since 1980 and 41 percent since 1990. However, such accidents tend to be especially dangerous and destructive, and railroad actions to reduce them further continue unabated.) PTC systems, which would use digital communications technology and advanced processors to control train movements, would be self-enforcing—*i.e.*, they would apply brakes automatically to stop a train if the engineer failed to obey speed limits or continued onto sections of track without proper authorization. More advanced versions of PTC might also provide warning of damaged track or bridges, track obstructions, and/or other on-track equipment.

In addition to reducing train collisions, a successful PTC system would reduce the number of derailments caused by excessive speed, reduce the number of train incursions in track maintenance zones, and facilitate high-speed rail projects by making rail lines safer for concurrent use by both passenger and freight trains. To date, railroads have spent more than $225 million to develop and test positive train control technology.

The basic problem confronting PTC systems is that, with available technology, they are extremely expensive and still of questionable reliability. The most recent estimated costs—from a 1999 benefit/cost analysis using standard U.S. DOT methodology and performed by the FRA-sponsored Rail Safety Advisory Committee (RSAC)—range up to $7.8 billion for system-wide implementation of the most advanced current systems. The RSAC study found that the total costs of even a limited PTC system would be more than double the expected benefits, while the benefits of the most advanced PTC system would be less than 10 percent of total costs. The FRA forwarded the RSAC's findings to Congress.

In view of these findings, railroads and their suppliers are continuing efforts aimed at developing cost-effective, functional train control systems. For example, the FRA, the Illinois DOT, and the AAR are jointly funding, developing, testing, and implementing a PTC system for a portion of a Union Pacific rail line from Chicago to St. Louis. The nearly $70 million project will begin testing this fall, with full implementation planned for the summer of 2003. Meanwhile, CSXT is testing a PTC system called Communications Based Train Management (CBTM) in South Carolina and Georgia. Another PTC system—the Incremental Train Control System (ITCS), developed by the FRA, the Michigan DOT, and Amtrak—is being used on a line in Michigan.

These field tests, under actual operating conditions, are critical to determining the effectiveness of the experimental PTC systems. As with any experimental system, there is a concern that if PTC is implemented before the system design and software are perfected, the safety environment could actually be worsened.

The key objectives of the rail industry's PTC efforts are to create a system that is safer than the present, is interoperable among railroads, and is cost-effective. To that end, railroads are working to develop industry standards to provide for potential implementation at different levels of capability. Each railroad will be able to choose the specific means by which it would attain the industry standard, but interoperability will be assured. This approach will provide train control standards that allow each railroad to determine its needs and implementation strategy and to coordinate PTC with investments in communications systems and processor technology.

Freight railroads oppose statutory train control mandates. The diversion of huge amounts of limited railroad capital to unproven and uneconomic technology would not improve safety. Instead, it would limit what railroads could spend on more effective safety enhancements, would raise industry costs, and would ultimately restrict railroads' ability to invest in the equipment and infrastructure they require to meet their customers' needs. The cause of safety is not advanced if premature PTC mandates ultimately lead to a diversion of rail traffic to highways that, as noted above, are less safe than rail.

3. Railroads are actively pursuing other technological advances in track and equipment safety.

Railroads have achieved dramatic advancements in safety through the introduction of new technology, much of which was developed and/or refined at the Transportation Technology Center in Pueblo, Colorado. The center, which is operated by a wholly-owned subsidiary of the AAR—the Transportation Technology Center, Inc. (TTCI)—is generally considered the finest rail research facility in the world. The following are just a few examples of the wide variety of significant technological advances, some completed and some still under development, that are having or will have a direct positive impact on rail safety:

- *Wayside detectors* identify defects on passing rail cars before structural failure occurs. The types of defects that wayside detectors can identify include overheated bearings and wheels, deteriorating bearings, cracked wheels, and excessively high and wide loads.
- *Trackside acoustic detector systems*, currently in the developmental stage, identify internal bearing defects through "acoustic signatures." Existing bearing detectors identify bearings in the process of failing by measuring the heat they generate. Acoustic detectors would be able to identify bearings with defects before they fail, thereby preventing accidents.
- *Wheel profile monitors*, which are also under development, use lasers and optics to capture images of wheels. The images show if wheel tread or flanges are worn and, consequently, whether the wheels need to be removed from service.
- *Rail defect cars* are used to detect internal rail flaws. The AAR and the FRA have jointly funded a Rail Defect Test Facility that railroads and suppliers can use to test improved methods for detecting rail flaws. TTCI is also investigating new rail defect detection technologies. A new ultrasonic system under development by TTCI and researchers from the Johns Hopkins University is scheduled for testing and evaluation later this year.
- *Track geometry cars*, which combine sophisticated electronic and optical instruments, are used routinely to inspect track conditions, including alignment, gauge, and curvature. TTCI is developing an on-board computer system that provides an even more sophisticated analysis of track geometry, predicting the response of freight cars to track geometry deviations. This information will better enable railroads to determine what track maintenance is necessary.
- *Improved metallurgy and premium fastening systems* improve the stability of track geometry, reducing the risk of track failure leading to derailments.
- TTCI is also developing *Integrated Railway Remote Information Service* (InteRRIS), an Internet-based data collection system with wide potential applicability. For example, an early project using InteRRIS collects data from wheel impact detector systems and truck performance detectors along railroad rights-of-way, and processes the information to produce vehicle condition and exception reports. Wheels with certain surface defects generate greater forces, and the wheel impact detectors identify wheel defects by measuring the force generated by wheels on track. Truck performance detectors identify suspension systems that are not performing properly on curves. Suspension defects can lead to greater wear on wheels and rails, and even to derailments.
- *Electronically-controlled pneumatic brakes* use an electronic signal along an on-train communications network to initiate brake applications and releases, thereby permitting the simultaneous application of all brakes on a train and reducing braking distances by as much as 40 percent.
- TTCI supports three *affiliated laboratory programs* at the Massachusetts Institute of Technology, Texas A&M University, and the University of Illinois. TTCI also actively participates in the activities of the National Academy of Science's Transportation Research Board (TRB) and the national laboratories. The university programs provide a way for the industry to engage in long-term partnerships with strong technical schools, thereby enabling cost-effective exploration of technical improvements to rail transportation. TTCI's ties to the universities, TRB, and the national laboratories also provide the industry with knowledge of cutting-edge technologies and applications that could benefit the rail industry.

4. Class I railroads are deploying portable locomotive control systems that promise significant safety benefits.

Accidents in rail yards account for more than half of all train accidents. Human factors-caused accidents in yards account for about half of all yard accidents, or about one-quarter of all train accidents. Portable locomotive control technology

(PLCT), which allows railroad personnel on the ground to operate and control locomotives through the use of a small control device that transmits signals to a microprocessor on board a locomotive, promises to bring about a significant reduction in human-factors caused yard accidents and hence a noticeable decline in the overall train accident rate.

A major advantage of PLCT is that it eliminates the need for communication between employees on the ground and operators on a train. In conventional operations, ground employees often give directions to train employees using hand or voice signals. The potential for miscommunication is significant. With PLCT, however, the ground employee who would have been giving signals to the train employee is the one using PLCT to operate the train. The danger of miscommunication is dramatically reduced.

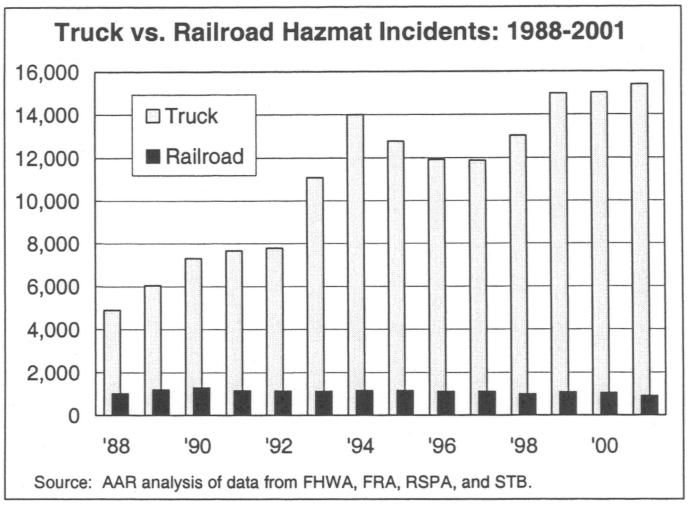
PLCT has been used extensively for several years on the two major Canadian railroads, numerous U.S. non-Class I railroads, and many private industrial U.S. railroads. It is now being put to use on U.S. Class I railroads. Where used, it has proven to be significantly safer and more efficient than conventional operations. On the Canadian National Railway (CN), PLCT has been used since 1989 and is now used for almost half of the railroad's Canadian yard operations. At CN, accident rates from the 1997–2001 period for yard operations using PLCT were 44 percent lower than the rates for yard operations using conventional technology, and no accidents have been attributed to the PLCT system itself. On Canadian Pacific (CP), which has used PLCT since 1994, the rate of yard accidents under PLCT has been about one-third that of conventional technology. Yard accidents on CP have fallen some 70 percent since the introduction of PLCT.

In February 2001, the FRA released guidelines addressing PLCT design, operation, training, and inspection and testing. As with other aspects of railroad operations, the FRA will retain authority over the safe operation of PLCT systems. The rail industry has developed a comprehensive training program for PLCT operators, who are certified pursuant to FRA-approved certification programs. PLCT equipment will be inspected daily and will not be used on passenger trains.

5. Railroads work diligently to ensure the safety of hazmat transport.

Thanks to massive infrastructure and equipment investments, safer operating procedures, freight car design improvements, and other factors, railroads have an excellent—and improving—hazmat safety record. In fact, railroads are by far the safest way to transport hazardous materials.

Approximately 1.7 million carloads of hazardous materials are transported by rail each year—double the number handled in 1980—and 99.996 percent of rail hazmat shipments reach their final destination without a release caused by an accident. Based on U.S. DOT data, in 2000 there was a release of hazardous materials from a rail car in a train accident only once for every 48,000 cars shipped. Railroads have reduced overall hazmat accident rates by 86 percent since 1980 and by 26 percent since 1990.



There is a far greater chance of hazmat release when materials are shipped by truck than by rail. Freight railroads have less than seven percent of the hazmat incidents that trucks do, despite having roughly equal hazmat ton-mileage.

Railroads pursue a wide array of efforts to ensure the safety of hazmat transport by rail. These efforts include rigorous tank car quality assurance programs, field testing, and inspections of chemical loading facilities; cooperative outreach programs with chemical companies to assist communities in developing and evaluating emergency response plans; hazmat training for emergency responders from municipal fire departments, chemical shippers, and others; and support for Operation Respond, a nonprofit institute devoted to improving the communication of emergency response information to police and fire departments. The value of these efforts is manifest by the fact that in the ten years from 1992 to 2001, only three persons died because of exposure to hazardous materials in rail transportation, according to the Research and Special Programs Administration of the U.S. DOT.

Trains containing specific amounts of the most hazardous materials transported by rail—referred to as "key trains"—are subject to special speed limits, passing restrictions, and inspection requirements. Railroads increase track inspections, training, and installations of hot box detectors on routes over which key trains operate.

Tank cars, which transport most hazardous materials, must meet stringent U.S. DOT specifications if used to transport hazardous materials. For example, they must be equipped with pressure relief devices (to protect the tank in the event of fire), double shelf couplers (designed to prevent tank punctures by a coupler), and steel "head shields" at each end of the car (intended as further protection against puncture). Some cars also have thermal shields, jacketed insulation systems, and protected top and bottom fittings.

AAR and the railway supply industry jointly fund the Tank Car Safety Research and Test Project. This project monitors tank car accidents and is continually updating a comprehensive database on the precise nature of damage to tank cars. Analysis of these data better enables researchers to identify the causes of tank car releases and determine the effectiveness of options to further improve tank car safety. The project database is often cited by the U.S. DOT as a role model for other modes of transportation.

In addition to its ongoing safety data collection and analysis activities, the project also has a number of ongoing research efforts, including efforts aimed at developing better steels for tank cars and developing a method for testing the effectiveness of surge suppression devices for tank cars. (Surge suppression devices reduce the movement of tank car liquids accompanying freight car acceleration and deceleration, which can lead to releases during transportation.)

To help protect their employees and the communities they serve, railroads offer basic hazardous material awareness training to all employees. Employees learn to recognize a hazmat emergency, whom to contact in an emergency, and proper evacuation procedures. Rail employees responsible for emergency hazmat response efforts receive much more in-depth training. Emergency response should be left to those specialized employees and contractors who are trained and equipped for this highly technical and dangerous work. Non-trained employees are expected to notify appropriate authorities, then move to a safe area while highly-trained specialists respond to the emergency.

6. Railroads work constantly to assure rail safety through rigorous management of the AAR's Interchange Rules.

The AAR's Interchange Rules are a series of requirements and specifications for freight railroad equipment. Extending far beyond federal requirements, the rules apply in the United States, Canada, and Mexico to equipment moving from one railroad to another. The rules help assure railroads, and the public at large, that rail equipment is interoperable and safe to operate. Virtually all freight railroads and all rail car owners in the United States have agreed to abide by the rules.

In addition to equipment standards, the Interchange Rules contain quality assurance requirements for manufacturers of freight equipment and components. AAR inspectors monitor compliance with the rules and the quality assurance program, and mechanisms are in place to enforce the rules.

An important feature of the Interchange Rules is the Early Warning System. The rules require railroads and car owners to notify the AAR if they discover a critical safety defect that, if not corrected, could result in severe injury or damage. If such a defect is found, the AAR will issue an Early Warning requiring all railroads and car owners to take appropriate action—for example, stopping cars and making repairs, if necessary. Railroads and car owners are required to report to the AAR action taken with respect to cars covered by an Early Warning. An example of an Early Warning is attached as Appendix A.

7. Railroads cooperate with their employees to improve safety.

Railroads are constantly working to develop cooperative relationships with their employees to enhance safety. Cooperative efforts aimed at combating worker fatigue were noted above. Another example is the Switching Operations Fatalities Analysis (SOFA) Working Group.

The SOFA group was formed in February 1998 to develop recommendations to reduce fatalities in switching operations. Along with the FRA, the AAR, BLE, UTU, and the American Short Line and Regional Railroad Association participate. After analyzing incident data, in 1999 the working group made five recommendations covering the securing of equipment while crew members are working on rolling stock, protection for train crews where two or more crews are working on the same tracks, job briefings at the beginning of tours of duty, communication between crew members when controlling train movements, and additional training for crew members with less than one year of experience. These recommendations have now been fully implemented by the railroad industry, and early results are encouraging. The SOFA group continues to meet to identify additional measures that can be taken to reduce the number of accidents involving railroad switching operations.

8. Railroads favor alternatives to the costly, anachronistic rail workers' injury compensation system.

Under the Federal Employers' Liability Act (FELA), which covers rail industry employees, employer liability for workplace injuries is predicated on fault. If the employer is found to be at fault, it is liable for damages. If the employee is also found to be at fault, compensation is reduced proportionately. Virtually all other workers in the United States are covered by no-fault workers' compensation systems, under which they are compensated for work-related injuries without regard to negligence.

From a safety perspective, FELA is counterproductive. It creates a highly adversarial relationship in the workplace—since both sides must seek to place blame on the other—thereby hampering the railroads' ability to investigate accidents to determine their causes, an essential step to finding ways to prevent future accidents.

Just as rail labor and management worked together to reform the railroad retirement system, AAR hopes that rail labor and management can work together to replace FELA with a more effective workers' compensation system that fairly compensates injured employees while reducing costs and enhancing safety.

9. Railroads advocate the adoption of performance standards in place of rigid design-based rules to regulate rail safety.

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 and delivery of its product or service. The FRA relies overwhelmingly on design-based standards in its regulation of railroad safety.

Design-based standards are costly for both railroads and the FRA to administer and maintain. They also tend to impede innovation because they "lock in" existing designs, technology, and ways of thinking. The infamous discolored wheel rule provides a classic example of a regulation that discourages the use of new technology. For many years, this FRA rule required railroads to remove wheels that showed four or more inches of discoloration, then thought to portend possible wheel failure. However, research in the 1980s demonstrated conclusively that discoloration in the newer 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 which railroads were forced to discard these 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 mandating the precise characteristics that a workplace must exhibit. Performance-based goals focus attention and effort on the *outcome*, not the method. The railroad industry believes that performance standards are far more likely to have a positive impact on railroad safety than continued reliance on design-based standards.

Under a rail safety regime based on performance standards, each railroad would have annual 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 measures it would take to correct the problems, and eventually be subject to monetary penalties. The FRA would retain the power to

conduct safety audits and to impose emergency directives at any time to protect public safety.

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 the measures and data are accurate, and impose any necessary sanctions.

Under safety performance standards, railroads would have the opportunity and incentive to achieve the desired outcome in the most efficient way possible. Performance standards would rely on the superior knowledge railroads and rail employees have regarding their operations, 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.

10. Railroads have taken proactive steps to increase the security of our nation's rail network.

Safety through security has become a major priority for the railroad industry. Immediately after the events of September 11, 2001, the railroad industry began developing a comprehensive Terrorism Risk Analysis and Security Management Plan. The industry formed a security task force composed of railroad representatives with expertise in areas such as operations, legal issues, railroad police activities, hazardous materials transportation, and information technology. Outside consultants with expertise in intelligence and counter-terrorism were retained to provide advice on best practices.

The task force created five Critical Action Teams addressing hazardous materials, operations security, infrastructure, information technology and communications, and military liaison. The task force undertook a comprehensive risk analysis which identified critical assets, vulnerabilities, and threats, and assessed the overall risk to people, national security, and the nation's economy. The task force then identified more than 50 countermeasures. The Terrorism Risk Analysis and Security Management Plan, which is now in effect, puts all this information together and establishes four different alert levels, with implementation of specific countermeasures dependent on the alert level in effect.

The plan also provides for the establishment of a Railway Alert Network (RAN), a 24-hours-a-day, 7-days-a-week communications center operated by the AAR. Through the RAN, railroads share information with our nation's intelligence community. In addition, the RAN provides a means for instituting appropriate alert levels and begin taking appropriate countermeasures.

The AAR also operates the Surface Transportation Information Sharing and Analysis Center (ST-ISAC). Presidential Decision Directive 63 called for the creation of private sector ISACs to protect the nation's critical infrastructure from attack. The ST-ISAC, formed at the request of the U.S. DOT, collects, analyzes, and distributes security information from worldwide resources to protect vital information technology systems from attack. The ST-ISAC also operates 24-hours-a-day, 7-days-a-week.

Finally, let me add that FRA safety programs should be funded through general appropriations, not by reimposing safety "user fees" on railroads. Proposed FRA fees are a form of tax that other industries do not pay. Firms whose safety is regulated by the Occupational Safety and Health Administration (OSHA) do not pay fees to that agency for its safety regulation. Equity demands that railroads not pay fees to the FRA to cover the FRA's safety regulation. Their imposition would constitute a shift to private industry of the costs of government regulation to achieve public goals. They would increase rail industry costs substantially, but would not enhance railroad safety.

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

APPENDIX A

Association of American Railroads
Early Warning

June 11, 2001

EW–5180

Subject: Ladder Pan Support Stiffeners on CN Multi-Levels

To: MEMBERS AND PRIVATE CAR OWNERS

File Number: c–9326

Canadian National Railways has advised that 68 CN multi-level racks receiving AAR Specification M–941 end enclosure modifications in 2000 had the ladder pan support stiffener coped to allow door clearance. The coping is not a requirement of Specification M–941 and has subsequently weakened this area of the rack. Such a condition may result in the ladder pan support stiffener cracking and this could propagate into the ladder pan support, eventually causing a complete separation. If the ladder pan support and stiffener break the ladder pan could become separated from the rack structure. In accordance with UMLER-TRAIN II procedures in effect May 1, 1994 this Early Warning is assigned Severity Code "MD"—Withhold empty car from loading, contact owner for disposition. The end ladder pan area (4 corners of the rack) on these bi-level cars (a photograph of a side view of the ladder pan support and stiffener is appended to this Early Warning) should be inspected. If the car is safe to move, home: shop disposition should be requested from CN. If the car is not safe to move, perform temporary repairs and then request home shop disposition from CN. Home shop disposition may be obtained by contacting: Ms. Christine Carrier Canadian National Railways AAR Billing 935 de La Gauchetiere St. West Montreal, QC, H3B 2M9 Ph. 514–399–3738 Fax. 514–399–4941 Email *Christine.Carrier@cn.ca* Cars inspected and sent to home shop should be reported to the RAILINC UMLER Section via on-line processes, e-mail: *umler@railinc.com*, or FAX: (919) 651–5405 as Code ME—Car Inspected, MOVING TO SHOP. Note: Until cars are unloaded, inspected and routed to shop, caution should be exercised on loaded cars by unloading personnel and M&R pool repair personnel.

In accordance with AAR Interchange Rule 125 procedures in effect July 22, 2002, this Early Warning is assigned SEVERITY CODE: **04-Withhold empty car from loading-contact owner**

Equipment Attachments

http://ewguest:railinc@64.80.98.164:8080/5180

Assignment Marks associated with this notice:

AAR Only

Inspection Marks associated with this notice:

Open

Allowable Final Inspection Codes Associated with this Notice:

MH-Car repaired, return car to service

MR-Car inspected, return car to service

Mechanical Designations Associated with this Notice:

No Mechanical Designations Specified

Early Warning **EW–5180** will expire on June 11, 2003

Senator BREAUX. Mr. Hahs.

STATEMENT OF DON M. HAHS, INTERNATIONAL PRESIDENT, BROTHERHOOD OF LOCOMOTIVE ENGINEERS

Mr. HAHS. Good morning, Mr. Chairman, members of the Committee. In the interests of time, my comments will be a brief summary of our written position. It is an honor for me to testify today on rail safety, and particularly on fatigue experience by locomotive engineers and other works in the rail industry, a subject of great concern to this country and all employees on the Nation's railroads.

The BLE represents 59,000 professional locomotive engineers and other rail workers in the United States and Canada. I am also representing the interests of more than 30 labor unions belonging to the AFL–CIO Transportation Trades Department. The headline-grabbing railroad accidents in the past several months unfortunately provide us an unwelcome opportunity to reiterate our concern with the current level of safety practice in the railroad industry.

First and foremost, we extend our heartfelt sympathies to all those impacted by these tragic events. The BLE lost one of its own members, Mr. Gaylen D. Shelby of Lubbock, Texas, in a fatal wreck in May of this year. Sadly, Mr. Shelby is the 27th member of the Brotherhood of Locomotive Engineers killed in on-the-job accidents since 1996.

The headlines of these stories describing these transportation disasters must always be viewed as opportunities to learn so that they might be avoided in the future. Our members are active participants in investigations being conducted by the NTSB, and for that reason I will not comment specifically on open investigations.

It is well-documented in the rail industry that the likelihood of accidents and injuries increases when employees are fatigued. Federal regulations limit the number of hours that employees in various transportation modes can work in 1 month. For example, a commercial airline pilot can fly no more than 100 hours per month, a truck driver can drive no more than 260 hours per month, but railroad operating employees under existing Federal regulations can work up to 432 hours per month.

The BLE advocates a solution of eliminating fatigue-related accidents in the rail industry that combines scientific knowledge about fatigue and what the brotherhood's 139 years of experience in operating trains have taught us. BLE advocates a three-pronged approach to eliminating fatigue, education, information, and empowerment.

The most important of the three is empowerment that will give employees a demand right to absent themselves from work if they are fatigued from previous service, or if they are ill. We request congressional leadership to bring us together to achieve this with a goal of eliminating fatigue as to factors in rail accidents.

Contributing to fatigue among rail operating employees and all employees in the railroad industry is a problem associated with staffing to do the work of keeping the railroads safe. Employees are continually being required to do more with less staff. This staffing shortage contributes to the core problem of rail safety. Currently, employees in signal, track maintenance, and track inspection, and in many cases operating, are stretched to their limits.

Insofar as remote control technology is concerned, PLCT and yard service is concerned, we are not convinced at this time that accident statistics provided by salesmen are entirely accurate, and we reserve the right to provide additional written documentation on this subject at a later time. However, the Brotherhood of Locomotive Engineers has long supported positive train separation as a major part of railroad safety. Positive train control can act as a guardian angel to protect the lives of train crews.

As we have been told, PTC has been on the National Transportation Board's 10 most wanted list for over 10 years, the safety improvements for that time. The fact of the matter is that several accidents could have been prevented and many lives could have been saved had positive train control been implemented sooner. Rail labor recognizes the difficulty involved in deploying a sophisticated technology such as PTC, and therefore recommends a reasonable approach must be taken to achieve an orderly cost-effective implementation of PTC technology.

On the final note, I want to express rail labor's support for Amtrak by urging Congress to support its short-term funding and long-term survival. As Americans, we need to fund Amtrak to make the promise of high speed rail a reality. Amtrak should be funded to the extent that America funds our Nation's highways and airports, make rail passenger service a viable alternative. With the volatile situation in the Middle East, we may soon find ourselves over the OPEC oil barrel again.

I thank you for the opportunity to speak today, and welcome any questions you may have.

[The prepared statement of Mr. Hahs follows:]

PREPARED STATEMENT OF DON M. HAHS, INTERNATIONAL PRESIDENT, BROTHERHOOD OF LOCOMOTIVE ENGINEERS

Good Morning, Mr. Chairman and members of the Committee. It is an honor for me to testify today on rail safety and particularly, on the fatigue experienced by locomotive engineers and other workers in the railroad industry, a subject of great concern to this country and to all employees of the nation's railroads. My name is Don Hahs, and I am the International President of the Brotherhood of Locomotive Engineers. The BLE represents 59,000 professional locomotive engineers and other rail workers in the United States and Canada. I am also representing the interests of more than 30 labor unions belonging to the AFL-CIO's Transportation Trades Department. The headline-grabbing railroad incidents of the past several months, unfortunately, provide us an unwelcome opportunity to reiterate our concern with the current level of safety practices in the railroad industry. First and foremost we extend our heartfelt sympathies to all those impacted by these tragic events. The BLE lost one of its own members—Gaylen D. Shelby of Lubbock, Texas—in a fatal wreck on May 28. Sadly, Mr. Shelby is the 27th member of the Brotherhood of Locomotive Engineers killed in an on-the-job accident since 1996. The headlines and the stories describing these transportation disasters must always be viewed as opportunities to learn so that they might be avoided in the future. Our members are active participants in investigations being conducted by NTSB, and for that reason, I will not comment specifically on open accident investigations.

Rail Safety and Infrastructure

The link to rail safety and the economic health of a railroad is undeniable. On June, 2002, in testimony delivered by Mr. Dan Pickett, President of the Brotherhood of Railroad Signalmen, rail labor stated its support for the U.S. House of Representatives, Committee on Transportation and Infrastructure's commitment to improve the safety of railroads as demonstrated by their comprehensive and visionary legislative agenda. The Committee's goal to provide capital in the railroad industry for maintenance, expansion, and improvements for infrastructure is commendable and recognizes this vital link between safety and rail infrastructure.

Fatigue

It is well documented in the rail industry that the likelihood of accidents and injuries increases when employees are fatigued. No rail safety initiative would be complete without proper fatigue countermeasures, which must take into consideration the fact that not all persons, nor railroad operations, require the same solutions for remedy. Some rail operators, for example, are motivated to work for long periods of time and experience no negative effects, while others will tire quickly depending on the cycles over which they work and how the cumulative effects of sleep deprivation may take its toll. As a threshold position to any fatigue management plan it should be understood that workers must not be subject to an involuntary reduction of earnings.

Federal regulations limit the number of hours that employees in the various transportation industries can work in one month. However, the limits vary from one mode of transportation to another, putting locomotive engineers at a higher risk of fatigue than almost any other worker in the nation. For example, a commercial airline pilot can fly no more than 100 hours per month. A truck driver can drive no more than 260 hours per month. But, railroad operating employees under existing federal regulations, can work up to 432 hours per month.

Hours of Service for operating employees

Significant changes have occurred over the last 15 years in our industry and these changes have had a negative impact on the ability to go to work rested. Some of those changes include fewer operating employees sharing greater responsibility for longer and heavier trains. Scheduled trains and thus scheduled crews are rare. Dispatching of trains from centralized offices has resulted in prioritizing train movement on the basis of the crew's time remaining to work, fuel efficiency, and congestion avoidance. Trips are longer and the territory over which a locomotive engineer operates has expanded. The long commute times required of workers have negatively impacted the little rest time they are allowed under the existing law. And, centralized crew calling operations have become automated and our members find it difficult to get the required information to determine an accurate prediction of their next duty assignment, thus impairing their ability to achieve required rest. We propose that one solution to this chronic transportation problem is to actually reduce the exposure to the total number of hours an employee must work or is susceptible to interruptions of rest by our employers. The BLE is advocating a 21st century solution to eliminate fatigue-related accidents in the railroad industry, a solution that combines scientific knowledge about fatigue with our Brotherhood's 139 years of experience in operating trains.

BLE advocates a three-pronged approach to eliminate fatigue—education, information and empowerment.

Education of workers is key. Education incorporates knowledge of the body's circadian rhythms, knowledge of work/rest cycles, knowledge of split shifts, knowledge of backwards and forwards shift rotation, knowledge of sleep requirements, and knowledge of peer intervention and counseling.

Information incorporates labor and management working together to exchange information about conditions that can contribute to fatigue, such as lineups, call notification, and traffic patterns. The BLE believes that the current chaotic scheduling practices contribute greatly to locomotive engineer fatigue and railroads, operating employees and the government must work together to help solve the problem.

Empowerment—authentic employee empowerment—incorporates labor working together with management and government to develop a structure that empowers workers to remove themselves if they are unfit to work because of fatigue or illness. It also incorporates giving all workers the right and responsibility to assist other workers to understand and deal with their fatigue.

The belief is that our safety depends on our mutual alertness. Railroad employees are in the best position to observe when one of our own—because of fatigue—cannot fulfill their obligation to be alert. We see the elimination of fatigue as a cultural change in the industry, and this cultural change must be driven by fellow workers. However, we need Congress to give us the tools to do it.

In order to address fatigue in a scientific manner that draws on current research, experiences of other transportation modes in the United States, and the political realities of the stakeholders, we request Congressional leadership to bring us together to achieve the worthy goal of eliminating fatigue as a factor in rail accidents. Absent satisfactory resolution for the implementation of this proposal in a collaborative process, Congress should act to:

Require the Secretary of Transportation to:

1) Issue a regulation within 180 days to require that:

No railroad employee shall operate railroad equipment, and a Railroad shall not require or permit an employee to operate railroad equipment, while the employee's ability or alertness is so impaired, or so likely to become impaired, through fatigue, illness, or any other cause, as to make it unsafe for him/her to begin or continue to operate the railroad equipment. However, in a case of grave emergency where the hazard to rail operations would be increased by compliance with this section, the railroad employee may continue to operate the equipment to the nearest place at which that hazard is removed.

For the purpose of this regulation, an employee having worked a minimum of 20 starts(equivalent to 2680 miles) of Hours of Service duty in the previous thirty days, or five starts (equivalent to 650 miles) in a seven day period, and requesting relief for fatigue will have met a definition of fatigue. A "start" is defined as any work period that requires a corresponding rest period as prescribed by 49 CFR Ch.II Part 228 Hours of Service of Railroad Employees.

For the purpose of this regulation "illness or any other cause" may include prescription and/or over the counter medication that may impair the employees ability or alertness.

This regulation is taken from 49 CFR 392.3, a Federal regulation implemented in the 1970's for the commercial trucking industry. The approach advocated by the BLE is desirable for the following reasons:

- It builds on the partnership principles between the railroads, labor, and government to develop a real solution to cumulative fatigue—more rest for the individual affected by erratic work scheduling.
- The regulation was modified to incorporate issues and history particular to the railroad industry.
- The suggested process also was effectively used to promote change in the aviation industry.
- The regulation is attainable within the constraints of the Hours of Service and existing FRA authority.
- It incorporates the desire for regulatory change voiced by the NTSB recommendations.
- The regulation builds on the use of education by empowering individuals to apply the knowledge learned from fatigue research. It does no good to know you must take time off, if the system arbitrarily restricts that off duty time.
- From the railroads' perspective, this proposal creates a minimum definition before fatigue is claimed. From this definition, the railroad would be able to project possible manpower shortages with a consistent standard in place. The railroads could plan and schedule both train movements and staffing requirements from the information this regulation would generate.
- The regulation would compliment the existing Hours of Service Law, and make the industry safer.

For the employee, this regulation empowers the worker to take control of his or her own rest and revitalization. For the majority of workers, this recommendation would widen the safety net for workers suffering from fatigue. BLE has given careful consideration to our responsibilities to the carriers, our fellow workers, and the public and we believe acceptance of responsibility for fatigue management is incumbent on all parties. To that extent the BLE commits to do all within our power to educate our members and other railroad employees of the provisions of this proposal.

Signalmen, Maintenance of Way Staffing Issues

Contributing to fatigue among all railroad employees, is the problem associated with sufficient staffing to do the work of keeping the railroads safe. This absence of rested workers goes to the core of the problem of rail safety. There has been a mass exodus of workers taking advantage of early retirement legislation, passed in the form of the Railroad Retirement and Survivors' Improvement Act of 2001. Members of AFL-CIO affiliated unions, including the Brotherhood of Railroad Signalmen, will face increased responsibilities until the railroads get staffing to adequate, prelegislation levels—especially in the area of signal maintenance. Currently, maintenance levels are stretched to their limits. Staffing levels are expected to be reduced by an additional 5 to 20 percent while the remaining 80 to 95 percent of the employees are required to handle the increased work load. This is unsafe and unacceptable.

My brothers and sisters in another AFL-CIO affiliated union, the Brotherhood of Maintenance of Way Employees (BMWE), are facing similar problems. Members of the BMWE build, maintain, inspect, and repair the tracks, bridges and related railroad infrastructure on Class I railroads in the United States and Canada. Over the past several decades, there has been a precipitous drop in the number of maintenance of way workers nationwide. While some of this manpower decline can be attributed to technological advances in track maintenance equipment and work processes, and while part of the decline can be attributed to the early retirement legislation, a majority of these cuts are attributable to lay-offs, furloughs, and lack of hiring. Like I mentioned in regard to signal staffing, we strongly believe the industry has cut its track maintenance forces too deep and there are not enough track maintenance personnel to stay ahead of declining track conditions.

In the past 15 years, staffing levels in the maintenance of way field has declined more than 40 percent on our nation's railroads. BMWE records indicate a *full 50% reduction* in maintenance of way staffing over the past 20 years.

Clearly, this type of precipitous decline in track maintenance personnel has a direct and substantial effect on track safety and the overall condition of the nation's

railroad infrastructure. While, in general terms, the roadbed does not deteriorate overnight, we do believe that we are beginning to see adverse affects of reduced staffing and deferred track maintenance. Rail labor is concerned that until we reverse this dangerous trend and put more maintenance personnel out on the right-of-way, things will continue to deteriorate exponentially.

We can look to Federal Railroad Administration for data, which indicates an alarming trend in track-caused derailments. In 1999, main line reportable train accidents numbered 858 and the main line normalized accident rate was 1.37. In 2001, main line reportable train accidents numbered 1,026 and the normalized main line accident rate climbed to 1.64. In 1999, reportable yard train accidents numbered 1,531 with a normalized yard accident rate of 17.51. In 2001, reportable yard accidents numbered 1,517 and the normalized yard accident rate increased to 17.72.

The spike in track caused derailments is not a statistical aberration, but rather, it indicates a definite systemic trend. Let's compare the overall number of track caused reportable accidents in the five year period from 1997 to 2001. In 1997 there were 879 reportable *track-caused* accidents overall(main line, yard and other), in 2001 that number increased to 1,115 track-caused accidents. The normalized overall *track-caused* train accident rate increased from 1.3 to 1.57 during the same five-year period. To break this down further, in 1997 the *main line* track-caused reportable accident rate was 0.58. In 2001 the *main line* track-caused rate increased to 0.62, the highest rate since 1997. In yards, the track-caused reportable accident rate in 1997 was 4.63, while in 2001 it increased to 6.22.

Clearly, these alarming statistics prove beyond any doubt that the train accident rates and track-caused accident rates are moving in the wrong direction and changes have to be implemented now to prevent greater deterioration of the roadbed and rail safety in the near-term future. The fix to this escalating infrastructure problem is within reach. Increase track maintenance staffing levels to facilitate proactive track maintenance and repair, improve employee training, develop more thorough track inspection and defect repair procedures, and improve conditions under which track inspections are conducted. These are the steps necessary to reverse the dangerous trend of deteriorating track conditions, escalating train accident rates, and track related railroad accidents.

Track Inspector Staffing

With regard to track inspection, responsible modification of track inspection processes and procedures is also essential to improving track safety. The amount of territory a track inspector is responsible to inspect on a weekly basis is overwhelmingly too large. FRA confirmed this in its audit report entitled "CSX Track Audit 2000." A pertinent excerpt from that report states, in part:

> Recently, CSX management has reduced the number of track inspector positions at a vast majority of their divisions and system wide. At the same time, CSXT has increased the track inspectors' territories at numerous locations. During listening sessions conducted with BMWE employees and first line supervisors, both voiced their concerns relative to the size of the inspection territories and the work requirements placed on the inspectors.

Track inspectors are highly skilled and dedicated employees on the front line of railroad safety. Track inspectors are required by Federal law to inspect track at certain frequencies, however, Federal law does not place any meaningful limits on the length of an inspector's territory or the speed over which the territory may be inspected. This problem has been exacerbated in recent years by manpower shortages, which places a heavier burden on the track inspector. In years past, track inspectors often had local maintenance crews available to correct track deficiencies as they were found and reported by the inspector. Today, however, the cut-backs in manpower have left many inspectors with no maintenance crews to facilitate repairs of identified track defects. In these situations, the track inspector is required to stop the inspection to effectuate the repair personally. This practice severely limits the time an inspector has to dedicate to the performance of actual track inspection, and he or she often has no other recourse except to make up that time by finishing the inspection of the territory at a speed which is not necessarily conducive to quality inspections. Thus, as stated previously, we believe that the industry must restore the ranks of local track maintenance forces to facilitate the timely repair of track defects and provide greater attention to problem areas before they become defects which can adversely affect railroad safety and the safe passage of trains.

Additionally, the re-establishment of rail safety user fees to pay for additional rail safety inspectors should be on the table. Furthermore, we believe that rail safety would benefit if some of those inspectors had specific training in computer technology, locomotive electronics, and train control.

Enhanced Coverage of the Hours of Service Act

It has been an unfortunate trend in the railroad industry that workers employed by outside contractors perform the same work as railroad employees. Although both groups are subject to the same hazards and have the same potential impact on public safety, the Hours of Service Act applies only to rail workers. The Act, 49 U.S.C. §21101–21108, should be extended to cover contractor's forces and certain other groups as follows:

- All employees of a contractor to a railroad, including employees of a sub-contractor to a railroad contractor, performing a covered service, as well as any individual who directly supervises an individual engaged in those activities;
- Power Directors, defined as railroad or contractor employees who affect the movement of trains through control of third rail or pantographic electric power, including persons who otherwise supervise, direct, connect, disconnect, or sectionalize power distribution for the electric propulsion of trains and/or for the protection of persons engaged in work on or in proximity to the power distribution system; and
- Dually Employed Persons, meaning persons at the same time in the employ of two or more railroad carriers, contractors or sub-contractors, or a combination thereof.

Enhance Rail Safety Enforcement

Rail labor believes rail safety would benefit from changes in law to:

- Extend the prohibition against employee harassment, intimidation and job retaliation to include railroad employees who step forward to file a complaint or testify in legal or regulatory action against the railroad;
- Enact new provisions making it unlawful for any person to knowingly interfere with, obstruct or hamper a railroad safety investigation, or knowingly or intentionally to use intimidation, harassment, or threats to influence the testimony of any person or prevent a person from attending such investigation. Both civil and criminal penalties should be imposed for violations;
- To ensure accountability for the safe operation and maintenance of railroad equipment and facilities, create a certification program for personnel with safety responsibilities that would include engineers, carmen, mechanics, signalmen and track inspectors;
- Direct the Department of Transportation to develop model state legislation to penalize drivers who maneuver around grade crossing gates;
- Require establishment of notification systems utilizing toll-free telephone numbers that the public can use to convey to carriers information about malfunctions of automated warning devices or other safety problems at highway-rail grade crossings;
- Amend 49 U.S.C. §20142 to direct the Secretary to issue rules requiring that no visual track inspection be conducted from a vehicle traveling at a speed of more than 15 miles per hour; and,
- Make provisions requiring all track motor vehicles, self-propelled maintenance of way equipment, and other equipment which is designed with permanent or retractable flanged wheels, to be designed and maintained so as to conduct electrical current from one rail of the track to the other. This will activate signal systems designed to detect the presence of locomotives, cars, trains, and other rolling equipment on the track.

Positive Train Control

The Brotherhood of Locomotive Engineers has long supported positive train separation as a major part of railroad safety. Positive Train Control can act as a "guardian angel" to protect the lives of train crews. PTC has been on the National Transportation Safety Board's "10 Most Wanted List" of safety improvements for more than a decade. While progress is being made toward the implementation of positive train control, the fact of the matter is that several accidents could have been prevented and many lives could have been saved had Positive Train Control been implemented sooner. Rail Labor recognizes the difficulty involved in deploying a sophisticated technology such as PTC and therefore, recommends a reasonable approach must be taken to achieve an orderly, cost effective implementation of PTC technology.

Conclusion

On a final note, I want to express Rail Labor's support for Amtrak by urging Congress to support its short-term funding and long-term survival. As Americans, we need to fund Amtrak to make the promise of high-speed rail a reality. Amtrak should be funded to the extent that America funds our nation's highways and airports. Make rail passenger service a viable alternative.

I thank you for this opportunity to speak today and welcome any questions you may have.

Senator BREAUX. Thank you, Mr. Hahs, and gentlemen, for your presentations. Let me start.

Mr. Gunn, you addressed the suggestion that the administration has made in proposing the separation of Amtrak's responsibility of operating the trains in the Northeast, with their responsibility to maintain the conditions of the right-of-way, and you said that you believed that this would pose serious safety concerns. Mr. Hamberger, what are your thoughts on the administration's proposal to separate the maintenance of the track operations from the operating responsibility from Amtrak?

Mr. HAMBERGER. I concur in Mr. Gunn's analysis. The British experience where there was separation of ownership was, in fact, a disaster. The Transportation Technology Center, Inc., a subsidiary of AAR, was in fact brought over to London to do an analysis of what happened. What was seen was that the wheel-rail interface, which is what we are talking about here as far as safety, was ignored because the incentives for the operator and for the maintainer of the infrastructure to provide that interface were not the same. So we believe that it is important to have the vertical integration between ownership of right of way and the operations.

Senator BREAUX. Mr. Hahs, would you agree with that position?

Mr. HAHS. I am not an expert on that. I would agree we want a safe railroad to operate on, and I will defer to the people who have more knowledge in that area than I do.

Senator BREAUX. Thank you.

You heard the discussion that I had with the previous panel of witnesses with regard to the administration's proposal on reauthorizing the Rail Safety Act. They did not mention two items that everybody from NTSB's perspective thinks is very important dealing with rail safety, and that is the positive train control, the PTC systems, and the fatigue question, and Mr. Hahs, you have addressed the fatigue question. It is not even mentioned in the reauthorization request from the administration.

I basically got the impression they did not do it because it is pretty controversial. I understand from staff that the fatigue hours in which rail engineers are required to work, that has been around for how long, since 1907, and it has not been updated? I mean, would you like to see a recommendation on this? Would your brotherhood have recommendations on it, or is this something we should just stay the hell out of and let labor and management negotiate how long you work? Do we have a legitimate concern about how many hours an engineer can work a week?

Mr. HAHS. We would not like to see the hours of service opened up. We would like to work with management and with Congress to put protections in place and agreements in place, or regulations, whatever it takes to provide engineers and other operating employ-

ees, other people in the rail industry with an opportunity to get needed rest when they require it.

Senator BREAUX. Well, I take it you would agree with what Mr. Rutter says, Congress has no role in this.

Mr. HAHS. Congress would have a role insofar as helping us reach a consensus on how we might obtain needed rest as far as employees are concerned. I mean, only as a mediator, I would think.

Senator BREAUX. Thank you. Mr. Gunn, Amtrak has positive train control operations on your Northeast Corridor tracks. How long have you all had that in operation?

Mr. GUNN. Well, the positive train control is in effect from New Haven to Boston, and that was put in when they electrified and rebuilt the old New Haven line, and I do not know the exact date, but we are operating with, we call it ASCES between New Haven and New York. On the rest of the corridor we have cab signals from New York to Washington—and I believe we have small stretches of ASCES installed there. We want to install ASCES on the entire length of the Northeast Corridor, but our cab signal system there enforces speed down to, I believe it is 20 miles an hour. At that point, it stops enforcing the signals so that you do not have positive stop, and that has been there for years. We have cab signals on the Springfield line as well that we operate, and that is the same as the corridor. It enforces the speed down to, I believe, 20 miles an hour.

Senator BREAUX. Mr. Hamberger, is it just a question of cost? I got the impression from NTSB the positive train control system should be part of the administration's recommendation, and I got sort of an answer from Mr. Rutter that, well, we are still studying it, but it has been around since the 1990's. It has been used in Europe. It is on some of the Amtrak lines. Is it not a legitimate argument to say we do not know enough about this to install it on trains around this country, or is it really just because it is going to be costly, and we do not want to put it in?

Mr. HAMBERGER. Well, I think there are two specific answers. One is that, as I understand the technology that is on the Northeast Corridor, it is not a full-blown PTC system. It is a predictive braking system. It does not provide all of the safety benefits that a full-blown system——

Senator BREAUX. But it is 100 percent more than we have got any place else.

Mr. HAMBERGER. It is also a very expensive system paid for by the Federal Government when it was put in. It is a matter of cost-benefit. Is that the most effective use, when only 2 percent of all accidents are, in fact, mainline collisions? Is that the most effective use when you take a look at where the fatalities and injuries occur? Is that where the resources should be placed, or should they be placed on track geometry cars, for example?

Senator BREAUX. How about the runaway CSX train that we could not stop? Would a positive train control system have been able to stop that or not?

Mr. HAMBERGER. I do not know the answer to that. I would point out that fortunately that did not cause——

Senator BREAUX. Well, we are all thankful that it did not, but the potential for a runaway train that we cannot stop, I mean, it seems like technology would be available to be able to stop a train that is running down the tracks with no engineer.

Mr. HAMBERGER. I am told that PTC would not have stopped that train, but I would like to provide a more complete answer for the record.

[The information referred to follows:]

The train in question was actually a yard switching movement. This locomotive had operating brakes, but the cars that were being handled did not have the brakes engaged. This is a completely normal train operation throughout the North American rail industry. The engineer had applied the locomotive brakes but mistakenly opened the throttle wide open which overcame the braking effect on the locomotive. No system currently available anywhere in the world or under design would have prevented this unfortunate occurrence.

Senator BREAUX. I would like to know why, because that is part of the design, they tell me, if PTC is supposed to be positive train control, and that if something happens to the train and PTC does not do it, what the heck does it do?

Mr. HAMBERGER. With your permission, Chuck Dettmann, our senior Executive Vice President for Safety and Operations is right behind me. Chuck.

Senator BREAUX. Sure.

Mr. DETTMANN. Mr. Chairman, on any of these type of systems, which are computer and communications based systems, the system has to know, just like in air traffic control, that the airplane, or in this case that the train, is allowed out in the system in order to activate all of the safety systems that come with positive train control.

In the particular example of the CSX train south of Toledo, there was no authorization. There was no system that was set up, because that was a yard movement. It is just like any other switch engine moving around in the yards of this country that unfortunately got out on the main track, and without the system having been activated, PTC would not have stopped it.

Senator BREAUX. I appreciate that, but we have got systems that you can install on cars now that if someone steals your car, you can push a button and stop the operation of that automobile. It seems to me that when we are talking about trains, that some type of a system in today's technology ought to be available to have some control over a train that is running down the track with no one at the controls.

I mean, positive train control systems are in place in many parts of the world, and yet industry seemingly is not doing anything, according to NTSB, to promote it. The administration does not want to recommend it, and yet other railroads are using it, but we are not.

Mr. DETTMANN. Mr. Chairman, if I may, there is no PTC system anywhere in this world that is working according to the designs that we, FRA, and the IDOT are designing in the State of Illinois, especially with Amtrak's help. The first one will be put in in Switzerland, in a 40-kilometer stretch, called ETCS this year at a cost of $2 million a mile. That is funded by the Swiss Government.

Now, having said that, we have been working diligently—we have spent over $250 million of private and Federal money to develop a system, and the Illinois project, which will be in a demonstrable phase in spring of next year, with Amtrak's help, with the State, and with FRA, and $20 million private money put in, that will demonstrate the viability of bringing all of the communications and computer technologies together, which has not been done to this point, sir, and to show that this system will work, and then how we can make it cost-effective.

For example, the Union Pacific, Burlington Northern, and GE spent $30 million in the Portland, Oregon area trying out a PTC system, and one of the things we found is the new generation of alternating current locomotives completely destroyed the computer and communications systems abilities to communicate because of the EMF that they put out. There are technical difficulties, Senator, that we are addressing as fast as we can. It is critical. We are working toward it, but there is no PTC system you can pick off the shelf and put into play, especially today, certainly not since 1990, when NTSB began their recommendations.

Senator BREAUX. The chief investigator of accidents is recommending it, it does not seem like much is being done to try and implement it, and they have been doing it for 12 years.

Senator Hollings.

The CHAIRMAN. Mr. Dettmann, let me get a fellow that knows this about thing. I am not talking about the PTC system. I am talking about the highway rail, these regular crossings, which at 41 percent is almost half. Now, you do not need a PTC system. All you need is that cross arm, and I speak advisedly. I made a living on you folks. That is how I got to be able to afford to serve in the U.S. Senate.

Fifty years ago I got the largest rail crossing verdict in the history of South Carolina, and I said, all you need to do is put up a cross arm, and the railroads absolutely opposed it. I went all the way to the Public Service Commission voluntarily and set up a hearing, and we ordered it at the Liberty Hill crossing in North Charleston, $7,500. That was way cheaper than the $300,000. That was 50 years ago. They get millions now.

But what about regular cross arms, protection at the highway crossings? That is not so sophisticated. Instead of the bell ringing automatically and the flashing light flashing, the cross arm comes down. You have got to break the arm to get up onto the track. That would save you a lot of lawyers and a lot of verdicts.

Mr. DETTMANN. Senator, if I may, the grade crossing protection is for the benefit of the highway population.

The CHAIRMAN. I am talking about for the benefit of the railroads. I did not sue the highway. I sued the railroad.

Mr. DETTMANN. I understand that, Senator. It is the State authorities that determine where the available money—and we certainly believe in the section 130 funds you have provided for this work, that it is critical. We at the AAR have on our own begun research into new low-cost crossing warning devices that, admittedly they are anywhere from $1/4 million to $1 million per installation now, to see if we can work with the suppliers to come up with a less costly grade crossing.

The CHAIRMAN. Mr. Gunn, on this limited time, I am worried, since 1996, 27 locomotive engineers have been killed. That is more than four a year. That is more than the pilots. What would you do, he says more empowerment, but I am running a railroad. I do not want all my engineers coming up to me and saying, I don't feel well, I don't feel well, I am empowered to say I don't feel well. On the other hand, something is wrong with work rules. They have got to cut back on their fatigue somehow. In your experience, what would you do?

Mr. GUNN. Well, Amtrak has a different situation to some extent from the freight railroads. First of all we operate a scheduled service, which means that our employees can, most of the time, plan their days off. Our policy is that—and we come under the hours of service law, which is now 12 hours, I believe, so we cannot have anybody on duty more than 12 hours.

We have a rule that if the run is more than 6 hours, we put a second person in the cab. That is what we do today, and on the high speed trains the runs are generally, less than 4 hours, and then the employee is off duty for a couple of hours until they return, so we will get two round-trips, New York to Washington.

I think the most important thing to me would be schedule. If you can schedule employees' time so they can plan their lives, I think that is important. I think you would not in our case want somebody running a passenger train, unless it was an absolute emergency, for like, 12 hours, trying to sit there and be alert. That is asking for too much, although out West that will happen. If you get into a delay it can happen, but I think scheduling, being able to schedule your time off is important, and that gets to the whole issue of having the railroad in good shape, having a minimum number of slow orders, and being able to move over the road quickly to do your day's work, so that you can have routines and that you can plan your rest.

The CHAIRMAN. Do you agree, Mr. Hahs?

Mr. HAHS. Well, that is a great concept, and he is exactly right. If you had a scheduled operation that is the way it would work. You could plan your time off.

The fact of the matter is, in the early nineties the railroads made a major effort to study scheduling trains, and they apparently have given up on it because they later in the nineties decided to start scheduling time off for employees and both have been very limited, with very limited success.

When I said people should be empowered to mark time off, I did not mean you could just walk in any day. I thought you would have to meet a criteria where you had been previously taxed from service. You had to work so much in a period of time, and you ought to be able to request rest if you need it. Not everyone is the same. Some people need more rest than others, and yet a lot of times employees on the railroad, operating employees are treated like a piece of equipment. If you are there and you are rested and available under the Hours of Service Act they expect you to go to work, and it just does not work like that for every individual, and that is all we are trying to do, is get some control over our lives, and we believe if we could get into a situation where people could request rest when they meet a certain criteria, that the railroads

may get more interested in trying to do a scheduled operation like we talked about to give time off.

The CHAIRMAN. Mr. Gunn, you diverted from your prepared remarks, and I was impressed with everything you had to point out with respect to the operation of Amtrak. Look at S. 1991 and find out where we are lacking, or wrong, or any criticism that you have for the Committee. We would appreciate it, because we work hard, and we think we have got the right approach, and any amendments or any suggestions that you have the Committee would appreciate it.

Specifically on the contingencies on this $100 million loan, I want to make sure that those are eliminated. I have seen the comments publicly about those particular requirements in order to get the loan, and it looks like more or less you are trying to get us out of business rather than in business, so make sure that we also take care of those contingencies in our measure as we try to pass something and keep it going.

Thank you, Mr. Chairman.

Senator BREAUX. Senator McCain.

Senator MCCAIN. Thank you, Mr. Chairman.

Mr. Gunn, I thank you for your candor and your honesty, and we all have high hopes as to the results of your stewardship of Amtrak.

You wrote a letter dated May 30 and you stated, I quote, for the past few years Amtrak pretended it was on a glide path to self-sufficiency, and maintained that fiction for too long. As a result, decisions that Amtrak made thinking it could achieve that mandate were unwise. Too many happy words have hidden some very dismal financial results, unquote. Do you not think somebody at Amtrak, namely, the board of directors, should be held accountable for these decisions?

Mr. GUNN. Well, first of all, obviously, I was not present. I do not know exactly what the interaction between management and the board was.

Senator MCCAIN. Do you know what the interaction is between any board of directors and a corporation?

Mr. GUNN. Let me just say that I think, in fairness, the board was given some information which was not clear.

Should they have realized that the situation was deteriorating? I think once they mortgaged Penn Station that should have sent alarm bells ringing off in everybody's head. When they did that is when I suddenly realized Amtrak was obviously in big trouble, but I do not want to characterized behavior before the time I got here, but I think people should have been aware that something was radically wrong.

Senator MCCAIN. Well, let me say that you did characterize their behavior in your letter to me. Have you closed your books for last year?

Mr. GUNN. We do not have an auditor's letter yet, but we have reached the point where our income statement, the draft income statement, unaudited, does reflect GAAP, and we had to make—I forget the exact number, but including both 2001 and 2000 almost $200 million of adjustments in the bottom line and, of course, it was the wrong way.

Senator MCCAIN. I do not agree with threatening to shut down the entire Amtrak system, including commuter and freight operations in the Northeast Corridor and other commuter operations performed by Amtrak under contract. Don't you think there should be a contingency plan in place to avoid this possibility in the future?

Mr. GUNN. Well, I think what should be available in the future is some predictability about Amtrak's survival. The problem we had in June is that we were about to run out of cash. Had that happened then, all of your employees basically are off the payroll. If you want a contingency plan for, let us say, the Northeast Corridor, you have to put in place a plan that will keep Amtrak, at least in the Corridor, running.

Senator MCCAIN. That is what I am referring to.

Mr. GUNN. But that would require a long term plan for how you are going to fund Amtrak, and what Amtrak is going to be. I mean, it was absolutely an awful period of time. I spent most of my time on the other side of the fence being the operator of a service that depended on Amtrak like SEPTA, for example, so I know what my compatriots were going through a very difficult period with us.

It was not a threat to shut down. It was just a description of the reality of what was going to happen, and it was a terrible time for them, and I am going to have a real hard time, I think, just reestablishing some trust with my fellow managers out there. I am going to try to do it, but the solution is to fund whatever it is Congress wants Amtrak to be. The solution is to put it on a stable fiscal basis so that you know that the services you want to continue will continue.

Senator MCCAIN. I agree totally, and the problem we have had in the past, you identified in your letter to me we were not given correct information, and without correct information, it is impossible for the Congress to act responsibly. We are counting on you to give us accurate information no matter how bleak that picture might be.

Last year, Amtrak hired McKinsey & Company to conduct a strategic analysis of Amtrak, and made recommendations. As I understand it, McKinsey concluded Amtrak should become a private for-profit company operating profitable service in corridors, providing subsidized long distance service under contract, and that Amtrak should prepare for potential competition. How much, in total, did McKinsey charge for its work, do you know?

Mr. GUNN. I believe that the total payments to McKinsey was over $11 million.

Senator MCCAIN. And why has Amtrak been reluctant to release the reports of this $11 million contract?

Mr. GUNN. Well, McKinsey came to me before I took the job. They obviously were interested in continuing the work. They actually came to Nova Scotia, and they promised me at that time that I would get the documents of the work that they had undertaken, and I am still waiting for that, and so I want to see——

Senator MCCAIN. You never got the report?

Mr. GUNN. I saw a pile of reports that were not synthesized. It was about that high, and in them there were a whole series of recommendations. They may have recommended what you just said.

That I do not remember. We talked more about the number of car cleaners, the switch-engine tricks, two three-man crews who switch engines, and things like that, but I am waiting—I am sure they are going to give it to me, because they said they would, but I do not have it.

Senator MCCAIN. Well, I think we have ways of acting if you do not get it. McKinsey does a lot of business with the Federal Government, and I hope you will share that. I believe you are obliged to share that information with us when you receive it.

Mr. GUNN. I would. The only reservation I have is, I think when they signed the contract with McKinsey there was some sort of a confidentiality agreement. That is in the back of my mind, and as long as there is nothing to legally interfere with my giving you the information, you are more than welcome to it.

Senator MCCAIN. Thank you. My time has expired, Mr. Chairman. Could I ask one further question?

Senator BREAUX. You may.

Senator MCCAIN. What do you forecast Amtrak's operating loss will be for this fiscal year, roughly?

Mr. GUNN. For this fiscal year it will probably be over $1 billion. In terms of cash, it will be somewhere around $500 million. In other words, when you take out depreciation charges it will be about $500 million. Our operating subsidy was about $200 million, which is why we have a $300-million problem.

Senator MCCAIN. Finally, I would like to know your view of the administration's announced plans for Amtrak and how you would like to see Amtrak reformed.

Mr. GUNN. The administration, if I remember rightly, there were five points, and I certainly agree with a couple of them. That is, to establish economic standards for Amtrak's services. I think that has to be done legislatively. I think it is very difficult for the management to do that.

I agree with running the place in an open and transparent way so that you feel comfortable with how we budget and what we budgeted for. You may not agree with it, but at least you will know what we are doing.

I disagree with the idea that you turn Amtrak into an operating company and put all of the routes up for bid for profit. The reason I disagree with that is that the routes are not profitable, and so what they are really saying is, you go out of business.

I disagree with separating the corridor infrastructure from the operation. I think that is a very, very unwise move, and as Mr. Hamberger said, the British have already proven, they have experimented for us, and we can thank them for that. We should learn from what has happened over there. It has not been a success, and I can tell you why, if you are interested, but there is a number of reasons why it does not work.

Senator MCCAIN. Well, maybe you could provide for the record some more specifics as to how you would like to see Amtrak reformed, Mr. Gunn.

Mr. GUNN. Well, I think my own view, and this is just my view at this point, is that there should be—first of all I agree with people who say that at the present time there is a certain inequity in the way that we allocate resources. I mean, some States pay sub-

sidized services, and pay 105 percent of long term variable costs. Other States get a lot of service with very little investment, and there should be equity across the board.

We should have a basic understanding of how we fund Amtrak, both capital and operating, and I would point to the transit model as an example. In transit there is a pool of money, with an 80/20 funding arrangement wherein the Federal Government puts in 80 percent of a project's cost, but there has to be 20-percent share of local commitment. I think some sort of arrangement where you have a method of allocating resources to people who really want service is important.

I think a number of our services, however, have to be funded as a national service, and those costs are relatively small, in the scheme of things. Primarily those are your transcontinentals, where it is very difficult to get support from a given State for a train that is passing through the State maybe in the middle of the night. So, I think there are a few services, the transcontinentals, the ones that go from Chicago West, for example, that need to be funded separately from the short haul services, and from the proposed high speed corridors.

I really think we need to decide how, and the split should be on funding between the local governments and the Federal Government, or Amtrak.

And on the operating subsidies, I think on the trains other than the transcontinentals we should set a very definite, what I call cost recovery target, and that is revenue over operating costs. In other words, you want to have some rules around where we run service and how it is funded, and I think that requires legislative action, because I cannot enforce that on my own.

Senator MCCAIN. Thank you. Thank you, Mr. Chairman.

Senator BREAUX. Thank you very much. I think it has been an excellent discussion on not only the safety, but on where we are with Amtrak. I think overall on the safety issues, which is the subject of this hearing, we have heard some positive things both from the freight railroads as far as the record is concerned, and also the record of Amtrak.

With regard to safety, I think there is always more that can be done. We are going to work on the safety reauthorization bill to see if we cannot improve some of those recommendations which I think are not as efficient as they should be. With that, this hearing has been very helpful, and I thank the witnesses very much for being with us.

[Whereupon, at 11:25 a.m., the Subcommittee adjourned.]

APPENDIX

PREPARED STATEMENT OF HON. MAX CLELAND, U.S. SENATOR FROM GEORGIA

Immediately after the terrorists attacks on America, when U.S. commercial jetliners were grounded, the only way I could get to my state of Georgia was by rail. It was an Amtrak train that took me to Atlanta, just as Amtrak safely delivered countless other Americans to their destinations during those critical days following September 11th. Mr. Chairman, you understood the critical importance of securing not just our airports and airways, but all of America's borders and transportation corridors. And so after 9–11 you called this subcommittee together to hear testimony on securing our national rail system.

At that October hearing George Warrington, then President of Amtrak, asked Congress for $3.2 billion to cover the safety, security and capacity needs of the national passenger rail system. Congress responded to Mr. Warrington's request in the same way we generally respond to Amtrak. Once again we treated Amtrak as the little "red-headed stepchild" of the transportation family and gave Amtrak a fraction of the amount it asked for. Instead of the $3.2 billion it needed, we have so far given Amtrak just $100 million to improve its tunnels and $5 million to help keep its passengers out of harm's way.

For three decades it has been Congress's pattern to short-change Amtrak. Since Amtrak was created over 30 years ago, our government has invested $25 billion in the system. In contrast, during this same time period, we have invested $750 billion in our highway and aviation systems. And in recent years, Congress has appropriated less than half the money it promised to appropriate in the 1997 Amtrak Reform Act. The $100 million loan the Transportation Department has said it would lend Amtrak is only about half of what Amtrak said it needed to operate until the start of the next fiscal year. As the distinguished chairman of the Transportation Appropriations Subcommittee has said, "proposing short-term loan guarantees simply kicks the can down the road and fails to face reality." This, my friends, is no way to run a railroad. It is, in short, a fiscal policy that undermines safety and ensures failure.

I am the proud cosponsor of legislation introduced by the Chairman of this Committee, Senator Hollings. We should all take note of the particular title of that bill—the National Defense Rail Act. It is predicated on the notion that a significant and substantial investment in rail infrastructure is an investment in America's economy and long-term national security. It is a concept not unlike President Eisenhower's vision 50 years ago of a system of Interstate and Defense Highways. It was a vision made reality only by our willingness to invest the nation's dollars in the nation's highways. A viable—and safe—national passenger rail system will also require this same kind of financial commitment—beginning with our willingness to provide to Amtrak $205 million in the Supplemental and an additional $1.2 billion in next year's Transportation Appropriations bill. I hope today's hearing provides an opportunity to ask some tough questions so that we can begin to get the even tougher answers we need to constructively move ahead.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. JOHN MCCAIN TO EDWARD HAMBERGER

Question. What did the freight railroads operating on the Northeast Corridor plan to do if Amtrak shut down as it threatened?

Answer. While the Northeast Corridor is principally used for intercity passenger and commuter operations, freight railroads have a critical need for uninterrupted access to the Corridor to serve a variety of customers, including automotive, chemical, electric power, and poultry feed operations. In fact, a significant portion of some individual railroad's revenues are derived from serving these customers.

Some of the affected customers' facilities are located directly on the Corridor, but others are located on freight-owned lines that can be reached only via the Corridor.

While some of these locations could be served by alternative rail service over less efficient routes or by intermodal service, many current rail customers would lose service entirely if an Amtrak shutdown resulted in freight railroads being unable to use the Northeast Corridor.

When the threat of an Amtrak shutdown arose, freight railroads identified which of their customers would be affected and examined the options available to permit service to continue. In addition to ensuring that the customers were aware that service to their facilities could be affected, the railroads made certain that the Surface Transportation Board and the Congress were aware of the potential impacts. Freight railroads also identified segments of the corridor where a freight railroad would be the only remaining operator and were exploring whether it might have been possible to arrange continued operations temporarily without requiring any services from Amtrak. Freight railroads were also prepared to pursue arrangements that would give them temporary access to required Amtrak facilities and personnel (especially dispatching, maintenance, and security personnel), although the uncertainty about Amtrak's future prevented freight railroads from fully exploring this possibility. Despite these various efforts, however, it is a certainty that some major rail freight customers, particularly in the southern tier of the Corridor, would have experienced significant disruptions were freight railroads forced to embargo their traffic.

Question. What do you think needs to be done to avoid the possibility of a shutdown of freight operations on the Corridor in the future?

Answer. Over the short term, directed service has been proposed as an alternative. Amtrak could be directed to keep the Corridor open for freight and commuter service by staffing the dispatching and maintenance functions. Freight and commuter operations would then take place as at present.

Long term, regardless of ownership, the Corridor must be funded sufficiently so that commuter and freight carriers have access to sufficient, well-maintained trackage to serve present and future markets. Insufficient funding means that passengers and freight will increasingly be diverted to cars and trucks on the region's highways. If another other than Amtrak acquires and maintains the Corridor, access for the freight and commuter carriers are similarly important.

Question. You noted in your written testimony that the overall train accident rate declined 64% from 1980 to 2001. However, the accident rate has been creeping up again, from 3.54 accidents per million train-miles in 1997 to 4.17 accidents per million train-miles in 2001. Is the increase in the accident rate due primarily to track failures? What specific actions has the industry taken to address the problem?

Answer. According to FRA statistics track-caused train accidents account for about 37% of all train accidents. Since the rate for track-caused accidents grew slightly faster [1] that the rate for all accidents [2] between 1997 and 2001, track-caused accidents accounted for about 42% of the increase in the overall train accident rate in that period. Most of the increase in train accidents in this period occurred in yards, where speeds are often slower.

Specific actions that the industry is taking to address this problem include: significant research in better quality track components such as rail and ties; more modern track inspection technology such as rail defect cars, track geometry cars and gauge restraint measurement systems; and cooperative industry-Labor-FRA programs such as Rail Safety Advisory Committee (RSAC), Safety Assurance and Compliance Programs (SACP), and core competency training.

Question. There have been many concerns raised about the ability to safely transport spent nuclear fuel and high-level radioactive waste from locations around the country to the planned repository at Yucca Mountain, NV. What special precautions do the railroads take in moving such shipments? Has the Department of Energy been willing to pay to have the material shipped in special train service?

The AAR has two programs to reduce the risk of the transportation of Spent Nuclear Fuel (SNF). The first is AAR's "Recommended Railroad Operating Practices for Transportation of Hazardous Materials" or OT–55. SNF and High Level Radioactive Waste (HLRW) are shipped in accordance with OT–55. Some of the provisions of OT–55 include:

- 1. Maximum speed of 50 MPH.
- 2. Special requirements if a wayside bearing detector finds a hot bearing condition.

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[1] *I.e.*, from 1.30 to 1.56 per million train miles, up 20%.

[2] From 3.54 to 4.17 per million train miles, up 18%.

- 3. Bearing detectors are placed no more than 40 miles apart
- 4. Main line track and sidings are inspected for rail defects and track geometry at an increased frequency.

In addition, AAR has drafted recommend practices governing the specifications for the rail cars that will be used for SNF transportation. Freight cars meeting these specifications will perform at higher standards than current freight cars. An important feature is the use of electronic controlled pneumatic (ECP) brakes. ECP brakes used in unit train service today, can stop up to 30% faster than conventional brakes because the signal is transmitted the length of the train electronically instead of by a pneumatic signal. In addition to providing superior braking performance, ECP brakes utilize a communication system throughout a train that can be used to transmit train "health" information to the locomotive crew and security personnel. The train health information includes monitoring for known derailment causes such as truck hunting,[1] rocking,[2] wheel flats,[3] defective bearings, vertical and longitudinal acceleration, and, of course, braking performance. It is noteworthy that the Private Fuel Storage (PFS) consortium, which is seeking to build a temporary storage facility for SNF in Utah, is currently designing their system to meet AAR's recommended practices for SNF Trains, and intends to use and pay for dedicated trains incorporating ECP brakes and a train health monitoring system.

While DOE has shipped most of its recent SNF shipments via dedicated trains, DOE has not yet committed to their use in their draft Request for Proposal (RFP) for Acquisition of Waste Acceptance and Transportation Services for the Office of Civilian Radioactive Waste Management. In the draft RFP, DOE indicates they will evaluate the proposals based upon "the degree to which the Offeror demonstrates that its proposed use of special trains and advanced rail technology for shipping SNF is cost effective and lessons the potential for adverse railroad equipment incidents, *e.g.* derailment, cask failure, and cask leakage of radioactive contaminants, among others." AAR believes that DOE should follow the lead of PFS and require the use of dedicated trains, and not leave it to the proposal evaluators to decide whether or not to use dedicated trains.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. JOHN MCCAIN TO HON. MARION C. BLAKEY

Question. NTSB is investigating at least five of the recent rain accidents, including the accidents near Minot, North Dakota, which involved the release of anhydrous ammonia and caused one fatality; the Auto Train derailment near Crescent City, Florida, which took four lives; and the rear-end collision of a BNSF freight train with a Metrolink train south of Los Angeles, which involved two fatalities. What conclusions have you reached to date? When can we expect the NTSB's probable cause of these accidents?

Answer. NTSB tries to complete major railroad accident investigations in approximately one year from the accident's occurrence. Each of the 3 accident investigations mentioned is at various stages in our process and on that one-year schedule. No conclusions have yet been made in these investigations. Below is a brief update:

- Minot, North Dakota, January 18, 2002—The NTSB completed a two-day hearing on July 16, 2002, that covered two major issues: track maintenance by the railroad and vulnerability of hazardous materials-carrying tank cars.
- Crescent City, Florida, April 18, 2002—The NTSB, during the week of July 22, 2002, interviewed track maintenance crews and supervisors in Jacksonville, Florida. CSXT track conditions are a focus of our investigation.
- Placentia (Los Angeles), California, April 23, 2002—We have interviewed the train dispatchers, requested cell phone records from the BNSF crew, conducted all signal tests, and are reviewing Federal Railroad Administration compliance records. Human performance of the BNSF train crew is an issue in this investigation.

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[1] Truck hunting is an instability at high speed of wheel set (truck) causing truck to weave down the track, usually with the flange of the wheel striking the rail.

[2] Excessive lateral rocking of cars and locomotives can occur, usually at low speeds. The speed range at which this cyclic phenomenon occurs is determined by such factors as the wheel base, height of center of gravity of each individual car or locomotive, and the spring dampening associated with each vehicle's suspension system.

[3] A wheel flat is a flat spot or loss of roundness of the tread of a railroad wheel.

Question. In your written testimony, you stated that "the Safety Board believes strong consideration should be given to the installation [at grade crossings] of devices that will prevent motorists from driving around lowered gates or median barriers." My understanding is that gates have been intentionally designed to allow emergency vehicles to drive around the gates. How would your proposal deal with emergency vehicles?

Answer. We understand the concern that has been expressed regarding emergency vehicles at grade crossings, and we are aware that some crossings have been intentionally designed to allow emergency vehicles to drive around gates. However, we do not believe this situation is wise and we do not support the notion that any vehicle, emergency or otherwise, should be permitted to traverse a grade crossing when the gates are lowered.

The regulatory minimum warning time for lights to activate at actively protected crossings—those with lights and gates—is 20 seconds, after which the gates begin to lower. The gates are then required to be horizontal for only 5 seconds before the arrival of a train. Given these short warning times and the inability of a train to stop to avoid a collision due to its mass and inertia, the risk of collision and death to highway vehicle occupants and train crews or passengers when a vehicle tries to circumvent lowered gates is simply too great. Our recent investigation of the grade crossing accident at Bourbonnais, Illinois, is an example of the risk involved and the tragic consequences in such cases.

Question. Preventing employee fatigue has been on the NTSB's "most wanted" list since 1990. What recommendations do you have with respect to the rail industry and how can this best be accomplished?

Answer. Fatigue in all transportation modes has been of concern to the NTSB for many years. The most recent safety recommendations regarding this matter were issued to the Secretary of Transportation and the Administrator of the Federal Railroad Administrator on June 1, 1999. Recommendation I–99–1, which supersedes a 1989 recommendation, and recommendation R–99–2, state:

Require the modal administrations to modify the appropriate *Code of Federal Regulations* to establish scientifically based hours-of-service regulations that set limits on hours of service, provide predictable work and rest schedules, and consider circadian rhythms and human sleep and rest requirements. Seek Congressional authority, if necessary, for the modal administrations to establish these regulations. (I–99–1)

Establish within 2 years scientifically based hours-of-service regulations that set limits on hours of service. Provide predictable work and rest schedules, and consider circadian rhythms and human sleep and rest requirements. (R–99–2)

We are aware that some individual railroad companies are addressing the fatigue problem, and the FRA has told the NTSB that it essentially concurs with the Board on the need to adequately address fatigue on the Nation's railroads. We believe the current hours-of-service regulations are obsolete and need to be revised based on the latest scientific findings. While sleep cannot be regulated, the NTSB believes that adequate time for sleep can be provided through changes in the hours-of-service regulations. We understand from the FRA that changes in statute are required to alter railroad hours-of-service, and we would encourage the Congress to act to address this critical problem.

Question. Are Amtrak's current procedures adequate for responding to a serious train accident and dealing with victims' families? How quickly was Amtrak able to provide a manifest following the Crescent City, Florida, derailment?

Answer. Because Amtrak has not been required to provide assistance to family members of accident victims, their current procedures are probably not adequate. However, Amtrak has advised NTSB staff that it is currently working to review and revise its procedures dealing with families of victims, and we have provided Amtrak staff with copies of the NTSB's federal disaster plan, and samples of aviation family assistance plans and emergency procedures.

Following the Crescent City, Florida, accident, many of the uninjured survivors did not receive timely Amtrak assistance or direction on how to proceed with their travel, and additional Amtrak staff on site would have been useful. In addition, Amtrak employees could not handle the volume of inquiries to its 1–800 number following the accident, and callers repeatedly received a busy signal for up to 3 hours.

Amtrak did not provide the Safety Board with a manifest until several days after the accident, even though the train was an all-reserved train. When we received the manifest, it did not have complete information, such as addresses or contact information.

As we have noted in past accidents, the manifest issue is one that will be difficult to resolve. On most passenger trains, advance reservations are not necessary or re-

quired, and passengers are able to board a train without a prior ticket purchase. Even on reserved trains, a reservation for a group may only include the name of the person purchasing the ticket for the group, and not the name of everyone in the group.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. JOHN MCCAIN TO HON. ALAN RUTTER

Amtrak Loan

Question. Why specifically was Amtrak not able to get the full $270 million from the Department of Transportation through a loan or loan guarantee?

Answer. The Railroad Rehabilitation and Improvement Financing (RRIF) program authorizes the Secretary to provide direct loans and loan guarantees to eligible applicants for eligible purposes. Those purposes include the acquisition, improvement, or rehabilitation of rail equipment or facilities. It specifically provides that such loans and loan guarantees shall not be used for railroad operating expenses. The only eligible purpose that was immediately identifiable was Amtrak's capital expenditure program for FY 2002. However, Amtrak has already funded much of that program throughout the year. Only the July, August, and September portions of that program, which totaled approximately $100 million, remained unfunded and were eligible under the RRIF program.

Amtrak Operating Expenses

Question. If Amtrak needs cash for operating expenses, what good is a loan for capital projects?

- If Amtrak is using the loan to free up its own capital funds to cover operating loses, doesn't this mean that Amtrak actually had over $100 million available to continue operating? If this is the case, why did you threaten to shut down the system?

Answer. First, the Administration did not threaten to shut down the Amtrak system. Amtrak management did that. Postponing capital expenditures was one of the strategies advocated by the Department and other members of Amtrak's Board of Directors to help the company get through fiscal year 2002. Amtrak's management, however, maintained that the $100 million in capital expenditures planned for July, August, and September in 2002 were required for the operational integrity of Amtrak or were required to meet obligations under existing agreements and contracts. Given the limited time available to the Department to prevent a shutdown of Amtrak service and commuter service dependent upon Amtrak, the Department was required to accept this statement of management.

Amtrak Loan Conditions

Question. The conditions the Administration put on the loan to Amtrak are a step in the right direction. Better financial controls and accounting transparency have been called for by many different interests, including the Amtrak Reform Council and a number of states, which often can't understand for what Amtrak is billing them. I am especially encouraged that Amtrak is required to develop a plan to reduce operating expenses by at least $100 million in fiscal year 2003.

- Please provide a valuation of all Amtrak assets.
- Are the conditions in the agreement only effective for the period the loan is outstanding—in other words, until November 15, 2002? Do you recommend that these same conditions be attached to Amtrak's fiscal year 2003 appropriations?

Answer. As a condition of the loan, Amtrak is required to provide the Department with a current inventory and valuation of its assets from existing sources of information within 30 days of the loan. FRA's work in evaluating Amtrak's loan application, however, showed that Amtrak's existing data on its assets are out of date. It is for that reason that the Department also intends to assure that an independent third party undertakes an updated arms-length valuation of all assets. I will keep the Committee informed as this effort progresses.

Sections 1.3 and 4.12 of the Financing Agreement provide that the conditions imposed as Attachments A and B to the "Loan Commitment Letter" dated June 28, 2002, will survive the termination of the Financing Agreement and will remain in effect to the extent provided in those conditions.

Service Expansions

Question. The conditions of the loan require Amtrak to immediately stop all work on projects to expand service. But the terms of the loan agreement state that this requirement does not apply where Amtrak is obligated by an *existing* contract or law to continue to fund such services. It is worthy to note that Amtrak plans to use about $11 million of its loan on high-speed rail projects and another $5.1 million for Las Vegas infrastructure improvements even though it doesn't currently serve Las Vegas.

- How many commitments has Amtrak made and what is the total exposure?
- Do the commitments include new high-speed rail projects in California, the Midwest, Florida and other areas? How do you defend such expenditures as "emergency" needs?

Answer. The Department of Transportation believes that its information on the specific commitments may be incomplete since Amtrak does not, as a routine matter, provide the Department with copies of these agreements. Amtrak is still working on which of its projects will need DOT approval under the terms of the loan agreement. In particular, Amtrak has not shared with us any conclusions about the Las Vegas project to date. I wish, therefore, to defer the response to this question until I have had an opportunity to compare FRA's current information with that of Amtrak.

The high-speed rail project-related activities funded under the loan agreement involve a number of existing and well-established infrastructure improvements to the Northeast Corridor and do not expand the existing scope of Amtrak's high-speed operations. With regard to Amtrak's involvement in high-speed rail efforts outside the Northeast Corridor, Secretary Mineta was very clear in his statement on the future of passenger rail service that there is a need to de-link the future of passenger rail currently provided by Amtrak from State-based efforts to develop high-speed rail on selected intercity corridors. The latter is more appropriately addressed by establishing a long-term partnership between the States and the Federal Government to support improved intercity passenger rail service.

Consultant Report

Question. One of the conditions of the loan is that Amtrak turn over to DOT all of the work product of Amtrak's third party consultant. Does this refer to the work Amtrak hired McKinsey and Company to perform? Hasn't the Administration seen this information—after all, Secretary Mineta does sit on Amtrak's Board.

Answer. The third party consultant work referred to in this condition is that undertaken by McKinsey and Company. While Amtrak's Board of Directors, including Deputy Secretary Jackson and me serving as the Secretary's representatives on that Board, have been briefed by McKinsey on several occasions, we were not provided with anything resembling a final report. That is the reason for the condition.

Report Recommendations

Question. Could you please summarize some of McKinsey's recommendations with respect to the strategic direction Amtrak should be pursuing?

Answer. Amtrak has only just recently submitted a copy of the report to the Department's Inspector General, and I have not yet had an opportunity to review that material. I will provide the Committee with this information as soon as I determine whether there is any material difference between the briefings I have received and the report provided to the Inspector General.

Additional Amtrak Debt

Question. The loan agreement suggests Amtrak is prohibited from incurring additional debt while the loan is outstanding. Yet, it states that Amtrak may incur indebtedness in connection with the purchase of assets used in the ordinary course of business. I assume this could cover passenger equipment, locomotives and just about anything else needed to run trains and stations.

- What protections does this provision really provide? Shouldn't we require that any new indebtedness be approved by the Department of Transportation?

Answer. Certain types of debt, such as long-term debt to acquire capital assets needed for operations and short-term instruments to mitigate cyclical swings in cash flow can be viewed as normal to conducting business. The Department's intent for this condition was to convey to Amtrak that taking on long-term debt to raise cash for operations is not an acceptable business practice and would be challenged by the Department. I do not believe additional action by Congress on this point is needed

at this time. Amtrak must now obtain the Department's approval for any financing secured by an asset of the Corporation.

Shortline Loans

Question. Shortlines have been trying to access this program for several years now, with no success. Yet, Amtrak is able to secure a loan in a matter of days.

- What kind of reaction are you getting from shortlines about the RRIF loan?
- What do you plan to do to improve the process for shortlines?
- How did the Administration rationalize not requiring any kind of credit risk premium from Amtrak?

Answer. The Department has received one letter written before the loan was made, from The American Short Line and Regional Railroad Association (ASLRRA), expressing concern that Amtrak not be treated differently than other applicants for financial assistance. The Department required Amtrak to comply with the same statutory and regulatory requirements as any other applicant under the RRIF program.

FRA has completed one loan and is near completion on another loan to shortline railroads. Once completed, FRA will conduct a program review of RRIF to identify the lessons that can be learned from these two agreements and other expressions of interest in the RRIF program that have not resulted in financing agreements. The program review will examine every step of the process to see where the procedures used by FRA can be improved and make us a better, more responsive participant in assuring that the essential capital investment needs of the rail industry are met. FRA will welcome the input of all interested persons, including the Committee, as part of this review.

Amtrak's loan request was extensively analyzed and was subjected to detailed and difficult negotiations before approval was granted. The Amtrak loan did not require a credit risk premium because of the extremely short-term nature of the loan (only four months) and the high amount of collateral pledged ($180 million for a $100 million loan). The credit risk premium calculation was performed using FRA's financial model in the same way as it is used in all other applications.

Amtrak Short-term Reforms

Question. Do you support the recommendations for short-term reforms that I and thirteen of my Senate colleagues have made to President Bush?

Answer. The Department and Administration share with the authors of that letter the view that Federal funding should be provided to Amtrak through formal grant agreements; Amtrak should not take on any new long-term or secured debt obligations without the approval of the Secretary; and, that a contingency plan needs to be developed to ensure that commuter and freight rail service can continue if Amtrak ceases intercity operation.

The Department continues to assess the benefits of establishing a commission to evaluate Amtrak's route structure and develop standards to determine what routes are operated. As you know, the Department sees the future of intercity passenger rail service in the context of Federal-State partnerships and believes that the States must play a strong role in determining which services are operated. So any such commission must also allow for State participation. Indeed, such a commission might not be needed if States were required to support those services that did not cover their net operating expenses. I believe that an important first step is to improve Amtrak's accounting systems so that decision-makers—be they Amtrak's Board, the States or a commission—have confidence that they have an accurate understanding of the revenue and expenses of specific routes and services. Development of such a transparent accounting system was required by the Department as a condition of the loan.

Finally, the Administration continues to review options concerning Amtrak's assets pledged to the Secretary in return for past and future investments in Amtrak. Thus, I do not yet have a position on the fifth proposal contained in the letter. I would note, however, that the independent valuation of Amtrak's assets which will also identify the extent to which they are encumbered, is an important first step in determining whether there should be a change in the Department's existing liens and mortgages on Amtrak's assets.

Track-Related Accidents

Question. What do you believe is the root cause for the increase in track-related accidents? Are the railroads deferring maintenance? Is track under more stress due to more train traffic and heavier loads?

Answer. Track-caused accidents have been on the rise in recent years, and track became the leading accident cause in 2001. Reasons for this increase and the deterioration in track conditions it reveals are not certain, but may include reduced investment in infrastructure, reduced maintenance-of-way staffs, insufficient training or monitoring of railroad track inspectors, increased traffic, increased axle loadings, and/or higher speeds. Of course, conditions vary from railroad to railroad.

FRA recently had great success in working with CSX Transportation, Inc. (CSX) to improve its track safety program. In 2000, FRA and state inspectors discovered disturbing patterns of noncompliance on CSX involving track gage, track inspection, and track repair. Track-caused accidents were on the increase. FRA and CSX entered into a unique compliance agreement that blended cooperative aspects with strict enforcement. Under the agreement, CSX promised to take specific steps to improve its use of track geometry vehicles, implement revised instructions for track inspections, develop performance standards and quality control teams for large scale track work, enhance management oversight of track inspections, and provide FRA with its capital improvement and maintenance programs for the next three years. CSX also agreed that it would pay fines without contesting them if FRA discovered any unacceptable track conditions posing an imminent hazard to train operations, and that FRA was authorized to issue a compliance order or emergency order that CSX would not contest if CSX failed to comply with the agreement. CSX took the necessary actions under the agreement (although it paid some uncontested fines along the way) and, within a year, had reduced its track-caused derailments substantially. FRA and CSX renewed the agreement for a second year, although, because of CSX's excellent performance, without certain of the original agreement's harsher enforcement provisions. The agreement expired on May 1 of this year, and the second year's results were also impressive: the number of track-caused derailments on CSX in 2001 was 19.8 percent lower than the number for 2000, and the number of those derailments on CSX declined by 26.2 percent from July 2001 to July 2002. The compliance agreement, coupled with CSX's commitment, brought about significant safety improvement.

The trend on track-caused accidents, however, is national in scope. To help address the problem, FRA has sought and obtained 12 additional track inspector positions in fiscal year 2002, and the President's budget for fiscal year 2003 contains a request for an additional 12 positions.

In addition to augmenting its track resources, FRA has brought a fresh perspective to enforcement in the track area. In January 2002, FRA issued a new track enforcement manual that makes focused enforcement a reality. The manual provides guidance on how to focus inspections on the leading causes of train accidents and strongly recommends taking enforcement action every time the most serious violations are found. Of course, inspectors are expected to use appropriate prosecutorial discretion when other violations are found. FRA is making use of its new resources and more focused enforcement policy to address the track compliance problem. We will blend cooperative measures and tough enforcement to get the job done, as we did with CSX in recent years. For those who may be less willing than CSX was to meet the challenge head on, we will use whatever level of inducement is necessary to ensure improved compliance and safety results.

Railroad Bridges

Question. Many of the nation's railroad bridges are 80 to 100 years old. Does FRA have an estimate of how many of these bridges need to be replaced in the next five years? Over the next ten years? And what is the estimated cost of replacement? In highway terms, what percentage of the bridges do you estimate are "functionally obsolete" or "structurally deficient"?

Answer. FRA does not have definitive figures or estimates on the age of railroad bridges, or the number that might be replaced in the next five or ten years. We do not maintain an inventory of bridges, because the cost would far outweigh any safety benefit from doing so. Bridge replacement decisions are the responsibility of the railroads that own the bridges, and FRA is not normally involved in the process.

Railroads base their bridge maintenance and replacement decisions on safety, service, and economic considerations. From the standpoint of safety, every bridge requires a level of inspection and regular maintenance to ensure its adequacy to safely carry railroad traffic. When service levels and equipment weights increase, the expense of maintaining an individual bridge in service will also increase until at some time the replacement or substantial rehabilitation of the bridge will be economically justified.

FRA foresees future safety concerns as the railroads' cost of maintaining the structural integrity of their bridges begins to increase significantly. Two years ago, FRA doubled the size of its bridge safety staff, from one to two persons. We have

managed to deal with bridge safety issues as they arise, including complaints with and without substance, and to generally monitor the bridge management practices of the railroad industry. However, we are beginning to see an increase in the number of bridge safety issues that must be properly handled by FRA and the railroad industry if the current excellent record of bridge safety is to continue.

Bridge integrity is a unique issue in the field of railroad safety because it demands a proactive program. Given the potentially disastrous consequences of bridge failure, waiting for such accidents to become statistically significant would be an unacceptable course. Therefore, FRA plans to intensify its bridge safety program with increased staffing in order to enhance its ability to detect and resolve problems before they become accidents. We also intend to adhere to our policy of non-regulation, for reasons stated in the earlier testimony.

Although we do not maintain a bridge inventory, FRA surveyed the railroads in 1992 to compile a rough count of bridges carrying railroad tracks in the United States at that time. From that count adjusted for time, and current experience, we can make some general statements about the continued serviceability of the Nation's railroad bridges.

We estimate that there exist 100,000 bridges that carry railroad tracks in the United States, or approximately one bridge for every 1.4 miles of track. Approximately 50 percent are steel or iron, 33 percent are timber trestles, and the remainder are of reinforced concrete or other masonry.

Railroad bridges are subjected to different loads and outside influences than are highway bridges. Railroad bridges carry much heavier loads, and they are not subjected to deterioration from the application of de-icing chemicals. The most significant factors in the serviceability of a railroad bridge are the intensity and the frequency of the loads it carries. A majority of the Nation's older railroad bridges (pre-1950) were designed to carry the heavy steam locomotives of the time, pulling lighter freight cars that normally weighed 177,000 pounds. Today's diesel locomotives do not impose the high impact stresses on bridges that were caused by steam locomotives, but common freight car weights have increased to 286,000 or even 315,000 pounds per car. It is these heavier cars that greatly affect the serviceable life of many existing bridges. The loads affect different classes of bridges in different ways. The concrete and masonry structures vary widely in age and configuration. The most recent of these, with prestressed concrete superstructures, generally are designed to carry modern railroad loads, and they are not a major concern for accelerated renewal. The older ones—massive stone, brick, and concrete structures—are not greatly affected by increased loads provided they receive normal maintenance. In fact, the oldest railroad bridge in service in the United States is a large stone arch bridge in Baltimore, Maryland, which was built in 1828 and continues to carry modern CSX freight trains with no weight restriction.

The most common type of timber bridge found on the Nation's railroads is the timber trestle, representing approximately one-third of all railroad bridges. These typically consist of a series of short spans of ten to fifteen feet on timber piles or posts. They were relatively inexpensive to construct, but they require continuous maintenance. Although many timber trestles have been in place as such for more than 100 years, few if any of their components are more than 50 years old, having been replaced for maintenance or upgrading of the bridge over time.

These timber trestles are greatly affected by the recent increase of car weights to 286,000 pounds. Many are beginning to show accelerated deterioration from these increased loads, and they will rapidly become very expensive to maintain in service. Because of this, and the increasing scarcity of good structural grade timber material, it can be expected that they will be replaced with steel or concrete structures as they reach the end of their economic lives. Over the next ten years, at least one-third of these bridges will probably be replaced, a total of 12,000 bridges, or 750 miles of bridge. The larger railroads have been progressing this replacement on heavy traffic routes for more than a decade. The expense of this renewal will be a major problem for many smaller railroads if they are to retain their ability to handle the heavier cars that operate in the general railroad system.

Heavier cars are having a significant effect also on the serviceability of iron and steel bridges. The great majority of these bridges, both large and small, were built during the first two decades of the twentieth century to carry the large steam locomotives of the time. Steam locomotives impose very high dynamic loads on bridges, and these bridges were designed to handle these high impact factors.

Today's 286,000-pound freight cars are imposing the same stresses in some steel bridge components as those developed by steam locomotives. However, instead of stressing the bridge member once per locomotive passage, the stress cycles are imposed by every loaded car, or sometimes 100 times more frequently than during the

earlier life of the bridge. The effects of these loading cycles accumulate as fatigue, and increase the likelihood that some bridge members will develop cracks.

The type of steel bridge most susceptible to this type of fatigue is the pin-connected truss. We have a very rough estimate that 300 to 500 bridges of this type exist in the Nation's railroad network, with a common span length of 150 feet. Of that number, probably 100 to 150 will become uneconomical to maintain in service and will be replaced in the next ten to twenty years. Of the remainder, probably 100 more will be modified or rehabilitated with the replacement of floor systems or some critical components.

The terms "functionally obsolete" or "structurally deficient," as applied in highway practice, have little significance when applied to railroad bridges. These terms are defined by the Federal Highway Administration as follows:

A functionally obsolete bridge is one that cannot safely service the volume or type of traffic using it. These bridges are not unsafe for all vehicles, but have older design features that prevent them from accommodating current traffic volumes and modern vehicle sizes and weights.

A structurally deficient bridge is closed or restricted to light vehicles only because of deteriorated structural components. Structurally deficient bridges are not necessarily unsafe. Strict observance of signs limiting traffic or speed on bridges will generally provide adequate safeguards for those using the bridges.

These classifications are used to classify bridges as discrete components of a highway transportation system. Railroads, however, consider bridges as links in a linear route, so that the capability of a route to handle cars of a certain weight is normally determined by the capacity of all the bridges on that route. The railroad considers the bridges on a given route to be suitable for service if they are capable of economically handling the traffic moving on that route. Bridge and other improvements to permit the movement of heavier or larger dimension cars are an economic issue that is internal to the railroad.

For FRA to develop an accurate, detailed, quantified analysis of the long-term serviceability of railroad bridges under heavier loads would require a major commitment of resources and funding which, up to now, has not been justified. We can justify a small increase in the safety effort, however, based on the information at hand, which has been summarized above. That some bridges are coming close to the end of their economical lives calls for more intensive monitoring of the safety aspects of railroad bridge management so that safety will continue to be the primary governing factor in all decisions related to the continued service of railroad bridges.

Employee Fatigue

Question. What kind of monitoring is FRA doing with respect to employee fatigue? Are the railroads required to submit records on how many hours individual employees are working on a daily, weekly and monthly basis? In other words, how well is this problem being documented?

Answer. FRA monitors fatigue through its efforts to enforce the statutory maximum on-duty requirements and minimum off-duty requirements of the hours of service law (49 U.S.C. 21101–21108). The statute applies to railroad employees who perform any of three types of service covered by the statute ("covered service"): train and engine service, dispatching service, and signal service. FRA regulations (49 C.F.R. part 228) require railroads to maintain records of the hours worked by all of their covered service employees (*i.e.*, those subject to the hours of service law) and to make these records available to FRA upon request for inspection and copying. In addition, these FRA regulations oblige railroads to submit to FRA reports of their employees' excess service on a monthly basis. FRA periodically audits railroads' hours of service records to assure that the railroads are accurately reporting this information to FRA. Were we to find instances of inaccurate hours of service reporting, we would not hesitate to initiate corrective measures, including the issuance of civil penalties against a railroad, when warranted. Beyond the information provided through part 228, FRA receives a number of complaints annually of hours of service violations, which it investigates. In summary, by conducting field inspections of hours of service records on the railroads' premises, by reviewing the monthly reports of excess service submitted to the agency, and by investigating alleged hours of service violations, FRA has gathered sufficient documentation with which to gauge a carrier's compliance with the hours of service law.

Despite our efforts to ensure the accuracy of hours of service reporting, FRA recognizes that more needs to be done to better gage the effects of fatigue on safety-sensitive railroad workers. The establishment of maximum work shifts and minimum rest periods is but one element of the complex set of issues that contribute to fatigue in the railroad environment.

For many years FRA had incorporated the monitoring of fatigue into its traditional enforcement and inspection activities. However, past monitoring efforts focused primarily on determining compliance with the hours of service law and hours of service recordkeeping regulations. Beginning in 2001, FRA undertook a much more aggressive approach to gauging the causes and effects of fatigue among railroad workers. These enhanced fatigue monitoring efforts may be partially attributed to the FRA Office of Safety's receiving its initial line-item funding for fatigue in its FY 2001 appropriations from Congress.

Consequently, FRA has embarked on several new initiatives aimed at more accurately monitoring fatigue in the railroad environment. These new initiatives include the following activities:

- FRA recently awarded a contract to Science Applications International Corporation (SAIC) to analyze selected accidents/incidents in order to ascertain the role, if any, played by fatigue. SAIC is utilizing a software model it developed that provides an assessment of the level of crewmembers' fatigue.
- Additionally, FRA has tasked SAIC with developing fatigue protocols to be used during FRA accident investigations. The agency is developing an accident investigation check list for use by safety inspectors to more accurately determine whether fatigue may have been a factor in train accidents where human error was found to be the primary cause. The results generated by the analysis and protocols will provide the foundation for *data-driven* fatigue initiatives, including recommendations in the area of work/rest scenarios.
- In partnership with The Burlington Northern and Santa Fe Railway Company (BNSF) and the Brotherhood of Locomotive Engineers, a pilot study is underway on the BNSF's Chicago Division, in which railroad employees will use a device called an "actigraph" to measure their actual hours of sleep and wakefulness over a several week period. This will provide an accurate measurement of typical work/rest cycles.
- FRA initiated a project at the Volpe Center to test and validate experimental fatigue monitoring devices and alerter technologies for application to the railroad industry. Once validated for practical use in the railroad industry, these devices could monitor and provide real time feedback about an individual's state of fatigue. If used as data-collection devices, they could help monitor the prevalence and incidence of fatigue in the railroad industry.
- FRA is also working collaboratively with other Departmental modal administrations as part of a procurement on fatigue management and assessment technologies. This procurement will lead to validated fatigue modeling and work schedule evaluation tools that may be used to track and help mitigate performance-critical levels of fatigue. (The recent award to SAIC to develop software for analyzing accidents/incidents for fatigue grew out of this effort.)
- FRA will soon award a grant to the University of South Australia to work cooperatively with the American railroad industry to identify specific locomotive simulator and event recorder performance measures sensitive to fatigue. Once validated, these measures can be used to help clarify how varying levels of fatigue interact with various operating tasks and environmental factors to impair performance. "Benchmark" operating scenarios can then be created to help estimate the risk of fatigue, and quantify what constitutes a "safe" level of fatigue, in different operational environments. Results of this project should help monitor some of the transient fatigue risk factors and reduce the risk of fatigue in the rail industry, where more effective interventions can be developed *before* accidents and incidents actually occur.
- In addition, discussions are underway with the National Institute of Occupational Safety and Health to conduct a collaborative study to monitor the levels of fatigue and stress of yard personnel.
- Beginning in FY 2003, FRA anticipates working with SAIC and a Class I carrier to explore the feasibility of using electronic hours of service documentation to supplement our fatigue data base(s).
- In the future, FRA intends to develop measurement tools to evaluate the success of fatigue initiatives that are currently being developed. As a corollary to efforts in this area, under terms of a cooperative agreement between FRA and the United Transportation Union, the latter will conduct pilot projects of various work/rest schedules to determine the effectiveness of these schedules in reducing employee fatigue.

FRA also monitors fatigue in the railroad industry through the exchange of information provided by the participants of the North American Rail Alertness Partner-

ship (NARAP). Established by FRA in late 1997, NARAP is comprised of representatives from all of the major railroads, rail labor organizations, and other concerned parties. NARAP provides an open forum for the discussion of fatigue-related issues and for the identification of best practices.

Whistle Bans

Question. With over 400 grade crossing fatalities in 2001, why is FRA considering rules that would allow municipalities to enforce whistle bans? Won't this be detrimental to the safety program? Will the railroads be liable for damages if there is an accident at a crossing where a whistle ban is in effect?

Answer. FRA is considering rules that would allow whistle bans because FRA is required by statute to do so.

Completion of this rulemaking is essential to reconciling highway-rail crossing safety with the quiet of communities. In response to 1994 legislation and FRA's own studies showing that local bans on use of train horns result in increased crashes and casualties at highway-rail crossings, FRA issued a proposed rule in January 2000. While proposing to require use of the train horn at public crossings, the notice also proposed alternatives that could be implemented by local communities that would be equally effective as the train horn in reducing safety risk. These "quiet zones" will enable communities to reduce noise while maintaining safety at highway-rail grade crossings. Increasing rail traffic on many rail lines is reducing community tolerance for train horn noise. FRA feels that without these proposed regulations many of these communities will ban the use of the train horn without implementing additional safety measures and thus create a greater risk to the motoring public.

FRA also thinks that the use of the supplemental safety measures to create a quiet zone will also increase safety and will have a positive impact on the overall crossing safety program. Four-quadrant gates or conventional gates with median (just two of the proposed supplemental safety measures) will make it much more difficult for motorists to disregard the automatic warning devices at the crossings and will increase crossing safety even with the horn being silenced. The proposed rule will also require corridor reviews that will look at the safety conditions at all of the crossings in the quiet zone. FRA's goal of closing redundant crossings will also be advanced as a community may be willing to close these crossings rather than make the safety improvements necessary to have a quiet zone.

The proposed regulations stated that the establishment of a quiet zone does not preclude the sounding of locomotive horns in emergency situations, nor does it impose a legal duty to sound the locomotive horn in emergency situations. Simply stated, a railroad would not be found liable for damages in a collision with a motor vehicle on grounds that the railroad failed to sound the train horn in a quiet zone established under the proposed rule.

Burlington Northern Santa Fe

Question. A number of recent accidents have involved head-on and rear-end collisions involving Burlington Northern Santa Fe (BNSF). On April 23, a BNSF container train rear-ended a Metrolink commuter train south of Los Angeles, apparently after the BNSF engineer ran a signal. On May 11, two BNSF coal trains collided head-on in the Powder River Basin in Wyoming, injuring four crew members. On May 28, two BNSF trains collided head-on in Clarendon, TX, killing an engineer. On May 29, a runaway car from a BNSF work train struck and killed a track worker. What are BNSF and FRA doing in response to these accidents?

Answer. Shortly after the coal train collision on May 11, the FRA Office of Safety's Operating Practices Division, our State Participation Program partners, and BNSF management began in-depth assessments of levels of compliance with BNSF and FRA operating rules and the railroad's efficiency testing program in all 13 of the railroad's divisions. This project relies heavily on communication of risks and results between railroad front line supervisors and managers and the operating crews of freight and passenger trains. FRA and State Operating Practices Inspectors are accompanying railroad managers in the field to observe and assess their competence in conducting the efficiency testing program, and to ensure that testing managers are accurately detecting rules noncompliance that may result in human-factor-caused train accidents or incidents.

Following the BNSF maintenance of way (MOW) employee fatality on May 29 and other MOW injuries on other major railroads, our Office of Safety's Track Division joined the Operating Practices Division in assessing levels of compliance with FRA's roadway worker protection regulations (RWP) and railroads' MOW Operating Rules. This initiative is similar in design to the Operating Practices Division's program and capitalizes on FRA's already-initiated intense inspection activity on major railroads

nationwide. In this initiative, track safety personnel from FRA and our State program partners are working with the rail unions and management to conduct systematic evaluations of RWP compliance levels and to communicate risks and hazards to railroad MOW employees and those who manage them.

These safety initiatives by both FRA's Operating Practices and Track safety personnel will run concurrently through the summer months, and they are planned to be completed in September 2002 on BNSF.

Crashworthiness Structural Requirements for Tank Cars

Question. Several recent train accidents have involved hazardous materials releases. In the Minot, North Dakota accident last January, the release of anhydrous ammonia killed one and seriously injured another 13 people. In the Potterville, Michigan accident on May 2, 200 people had to be evacuated due to the release of liquid propane gas. It certainly seems that today's cars cannot withstand a serious derailment without the threat of puncture. Has FRA initiated a rulemaking or other action to reevaluate the structural requirements for railroad tank cars?

Answer. While there is no question that train accidents involving the release of hazardous materials have the potential for widespread, serious harm, the long-term safety trends on the Nation's railroads, as judged by most indicators, are very favorable. While even a single death or injury is not acceptable, progress is being made in the effort to improve railroad safety. Based on preliminary figures, last year marked all-time safety records in several important categories. Overall, the total number of rail-related accidents and incidents and the total accident/incident rate were the lowest on record. In the period between 1978 and 2001, the number of train accidents involving a release of hazardous material declined from 140 to 31 despite a significant increase in the number of hazardous materials shipments from approximately 750,000 to nearly two million per year. Since 1990, a period in which railroads have transported more than 20 million hazardous materials shipments, three persons have died as a result of the release of hazardous material lading in a train accident.

In other words, over the last two decades the number and rate of train accidents, and the hazardous materials releases and deaths related to those releases, all fell dramatically. At least part of the credit for the decline must go to enhanced safety awareness and safety program implementation on the part of railroads and their employees, and to FRA's safety monitoring and standard setting.

FRA has been engaged for more than three decades in an active, ongoing program to improve the safety of tank cars. This program has involved regulation, education, and research and much of its success is the direct result of the partnerships FRA has fostered with tank car builders, users, and repairers. Many of the specific aspects of this program will be detailed later. Right now, FRA is engaged in a recall, inspection, and "repair before next loading" program affecting some 7,000 cars built before 1974. This program is an outgrowth of regulations requiring tank car facilities to institute quality assurance programs as described below. In addition, FRA is developing an improved compliance program to ensure that tank cars are maintained in a railworthy state throughout their service life.

Regarding the derailments at Minot, North Dakota and Potterville, Michigan, we are not absolutely certain why the cars fractured or ruptured in either train derailment; however, based on our knowledge of the severe forces involved in each situation, we believe these cars encountered such extreme energy that no reasonable tank car design could have survived. While it is impossible to prevent every release of product as a result of a train derailment, great strides have been made, as I will detail later, and the agency is working to reduce the impact zone of a hazardous material release should one occur as a result of a train derailment. These efforts will help protect the public, train crew personnel, and the affected environment should a release occur.

FRA, AAR (the Association of American Railroads), and RPI (the Railway Progress Institute) have studied the issue of tank car vulnerability in train derailments since the late 1960s. As a result of these studies, improvements were made to tank car steels with respect to both their chemical make-up and the controls used in processing the steel plates. Each of these improvements was the result of technological advances in material science and steel-making practice. The end product of these studies is significantly improved steel, steel that exhibits both increased crashworthiness and puncture resistance in train derailments.

While we continue to quantify the dynamic effects of fracture and puncture of tank car steels involved in a train derailment, we have realized that more research is needed. In *FRA's Five Year Research Vision Statement*, the agency has targeted research to characterize the following phenomena:

- *The Impact Energy During Train Derailments.* This project would develop a load model to estimate the impact energy into the tank envelope and on appurtenances during a derailment and the effects of those energies on the tank and appurtenances. A combination of computer modeling and analysis, FRA accident data, and detailed tank car damage data contained in the RPI-AAR Tank Car Project database would be used to develop the spectrum of loads. The results of the study will help establish quantitative estimates of the risk of using different materials in the construction of tank cars.
- *The Dynamic and Static Loadings During In-Train Operations*. This project would explore the effects of in-train (non-accident) related forces and the pathways of these forces through the tank envelope. This will require over-the-road testing of a representative number of tank cars to determine the dynamic forces acting upon the car structure during normal in-train service. An understanding of these loads is important in the design and material selection stage with respect to fatigue related failures—failures related to cyclic loading.
- *Material Behavior*. This project would review the results of the above two studies for the development of an ideal steel specification; a steel that has improvements in its ability to resist puncture, rupture, and fatigue. The research would characterize the effect of material behavior on the structural response of tank cars involved in accidents and normal loading. By quantifying this effect, there will exist an understanding of the consequences of structural steel properties with respect to the risks of using different materials in the construction of tank cars.
- In addition to FRA's proposed research, at the July 2002 Tank Car Committee meeting, FRA, working in cooperation with the railroad tank car industry, agreed to form two government/industry task force groups to characterize the following:
- The risks and consequences of various tank car designs, materials, and service with respect to their (tank shell) vulnerability to fail catastrophically at temperatures below the nil-ductility temperature of the steel.
- The types of tests for determining the nil-ductility temperature of the steel and recommend changes in the Tank Car Manual with respect to quantifying the materials for use in new pressure tank car construction, including the minimum design temperature range of the tank and the minimum grain size of the steel. (Reducing the grain size improves the fracture toughness and crashworthiness of the steel.)

While much can be said with respect to what the agency is doing to reevaluate the structural crashworthiness of tank cars involved in train derailments, no story is complete without the context of what has already been done to radically improve the crashworthiness of tank cars since the 1970s.

Safety Improvements 1970–1990

From 1970 to 1990, there were five major areas of safety improvements:

(1) Shelf Couplers: Research on accidents showed that a frequent cause of hazardous materials releases was a coupler that vertically disengaged during a derailment or, due to overspeed switching, acted as a battering ram to puncture an adjacent tank car. Top and bottom shelf couplers were found to be effective at keeping couplers engaged during switching and in derailments, thereby preventing this type of release. These double shelf couplers are now required on all tank cars transporting hazardous materials.

(2) Head Shields: Related to the above problem was the need for extra protection of tank heads, particularly in derailments when a coupler or a rail might puncture the tank head. Head shields are thick steel plates that are mounted on the ends of a tank car used to haul high-risk materials, such as compressed gases and materials poisonous by inhalation. These shields provide extra puncture resistance for the tank heads in accidents.

(3) Thermal Protection: In the past, when tank cars carrying certain compressed gases, such as liquefied petroleum gas (LPG), were involved in derailments in which the cars were exposed to fire, the LPG was heated, its pressure rose, and it vented through the pressure relief valve. However, as the liquid level inside the tank dropped, the flame could heat and weaken the tank steel in the vapor space. Thermally induced internal pressure acting on the weakened tank steel could cause the tank to fail and rupture violently. The solution was to apply a layer of thermal protection on these tank cars to slow the rate of heating and provide time for the tank to vent its contents, thus greatly reducing the likeli-

hood of a tank failure. Subsequent accidents involving cars with these materials and design modifications have shown them to be highly effective.

(4) Bottom Outlet Protection: Fittings on the bottoms of tank cars are susceptible to damage when there is a derailment. Tank car companies and valve manufacturers developed valves that were less likely to leak when damaged. These companies also developed skid protection devices that were mounted around the bottom outlet to further protect them as the tank skidded in a derailment. Subsequent analysis by the RPI-AAR Tank Car Safety Project has shown that these devices reduced the frequency of leaks from bottom fittings by 55 percent and also reduced the severity of those leaks that did occur. The AAR Tank Car Committee required that all new tank cars manufactured since 1978 have bottom fitting protection and developed a schedule for retrofitting existing tank cars with skid protection based on the hazard posed by the chemicals they carried. This retrofit was completed in the 1990s.

(5) Quality Assurance: Starting in the 1980s, AAR imposed a rigorous quality assurance certification and auditing program on certain railcar components and, in particular, on the tank car building and repair industries. The program provides a disciplined approach for the examination of contractors' quality management programs and the effectiveness of their implementation. The goal is to ensure that materials, products and services conform to specified requirements. These requirements are now mandatory under Federal law.

Safety Improvements 1990–2000

From 1990 to 2000, more safety progress was made, as illustrated by the following eight initiatives:

(1) OT–55-D: Based on recommendations of the Inter-Industry Task Force (IITF), a group comprised of senior executives from the rail, chemical and tank car industries, the AAR implemented recommended practices for the rail transportation of hazardous materials. OT–55 designates trains carrying a specified number of cars of hazardous materials as "Key Trains." Key Trains are limited to 50 MPH and hold the main track at meeting and passing points when possible. In the past, when railcars equipped with plain (friction) bearings were still in interchange service, the cars were not permitted in key trains, and currently other operating restrictions are imposed on these trains. Routes carrying more than a designated number of carloads of certain hazardous materials are designated as key routes. Key routes are equipped with wayside bearing-defect detectors at a minimum of every 40 miles and must be inspected by rail-defect detection and track geometry inspection cars (or equivalent) not less than twice a year. Yard coupling speeds are limited to four MPH, and certain cars may not be cut off in motion in more than two-car cuts. Additionally, training recommendations for transportation employees were established.

(2) More Damage-Resistant Tank Cars for Certain Dangerous Goods: FRA and the railroads were concerned that chemicals classified as poisonous (Poison Inhalation Hazard) or extremely harmful to the environment (Environmentally Sensitive Chemicals) were permitted to be shipped in tank cars that were susceptible to damage in accidents. A risk analysis of stronger tank car designs was conducted using FRA and the RPI-AAR Project statistics together with an assessment of the hazards posed by different chemicals. Based on these results and other factors, railroads, shippers, tank car owners and regulators agreed on requirements that more damage-resistant tank cars be used for these products.

(3) Tank Car Stub Sill Inspections: In response to the discovery of cracks in tank car stub sills, and at the request of FRA and Transport Canada, the railroads, tank car builders and chemical industry developed a program to inspect tank cars to determine the frequency and seriousness of these cracks. The program was developed to prioritize these inspections based on design-related criteria so that cars considered highest risk were inspected first.

(4) Damage Tolerance Analysis of Tank Car Stub Sills: A follow-up to the stub sill inspection program is Damage Tolerance Analysis (DTA). This investigation has been underway for several years to develop an improved understanding of the structural design requirements for tank cars based on the forces actually exerted on the cars in normal operation. The results of this investigation have helped tank car manufacturers improve the designs of their cars so that they are better able to withstand the railroad operating environment. DTA is ultimately intended to develop inspection intervals for each car design to ensure the safe operation of these cars.

(5) North American Non-Accident Release Reduction Program: The railroad and chemical industries have been at work for several years on a program patterned after a successful Canadian project to reduce the frequency of non-accident caused releases of hazardous materials. These releases are usually the result of improperly secured fittings on tank cars. The strategy of the program is to inform chemical shippers if they appear to have an inordinate number of releases and to provide them with information and guidelines on how to curtail these leaks.

(6) Tank Car Safety Vent Surge Reduction Devices: Throughout most of the 1990s, the leading source of hazardous materials releases in rail transportation was from tank car safety vents. FRA and AAR research showed that devices designed to prevent these leaks were effective, and this led the Tank Car Committee (TCC) to require that they be installed on new tank cars built after 1995 and equipped with safety vents. Further research identified which devices were most effective. FRA and TCC are in the process of establishing performance requirements for the devices, and a retrofit schedule based on this research is currently underway. Related to this, DOT now requires higher-rated frangible discs (165 pounds per square inch) to be used, also reducing the likelihood of a leak from a safety vent.

(7) Non-destructive Evaluation (NDE): Federal regulations now require the use of non-destructive evaluation processes to determine the fitness for service of tank cars. These methods have replaced the hydrostatic test of tank car tanks as the means to periodically qualify tank cars for continuing service. Whereas the hydrostatic test was a simple test of a tank's ability to hold pressure, the qualification of NDE personnel and the quantification of the NDE procedure are designed and intended to detect cracks and other flaws in tanks and tank structure prior to failure.

(8) Tank Car Damage Assessment: When a tank car is damaged in an accident, it is important to understand the consequences of the damage and the extent that a car's structural integrity has been compromised. FRA-sponsored research has resulted in an improved scientific and engineering basis for assessing the condition of a tank car and providing emergency responders with an improved basis for safety-critical decisions at an accident scene.

NTSB Recommendation

Question. The NTSB has recommended that FRA consider the volume of hazardous materials shipments in determining the frequency and type of track inspections. What is your view on this recommendation?

Answer. I understand your question to refer to NTSB Recommendation No. R–02–13, which reads "[m]odify your track inspection program to incorporate the volume of hazardous materials shipments made over tracks in determining the frequency and type of track inspections." The NTSB preceded this recommendation with the statement that it "concluded that the frequency and type of track inspections routinely performed by the FRA on the Beaumont Subdivision were inappropriate given the fact that this was a key route that carried large volumes of hazardous materials."

As to FRA's view on this recommendation, the transport of hazardous materials has always been a factor that FRA's management must consider when establishing priorities necessary to efficiently allocate the agency's inspector forces throughout the large territories that FRA monitors. This policy is currently defined in Chapter Two of FRA's *Safety Assurance and Compliance Program Manual* under the heading of "Allocation of Resources: Prioritization." In addition, the volume of hazardous materials transported over a particular route is weighted heavily in a list of factors used to identify and prioritize routes to be surveyed by FRA's Automated Track Inspection Program, utilizing the T–2000 vehicle.

To implement this prioritization policy more effectively, FRA is engaged in two improved efforts to identify and describe those routes where hazardous materials are hauled, including the type and volume of hazardous materials traffic on those routes. First, FRA is using the data from its Regional Inspection Points Program to adjust the information relative to heavy tonnage routes likely to support large volumes of hazardous materials shipments that have been identified by FRA's two-percent waybill sampling initiative. Second, FRA is gathering information on "Key Trains" and "Key Routes" from the individual railroads. As I discussed earlier, these terms have been defined by the Association of American Railroads to characterize the type and volume of hazardous materials being transported over particular routes.

RESPONSE TO WRITTEN QUESTION SUBMITTED BY HON. JOHN MCCAIN TO DON M. HAHS

July 19, 2002

Hon. John McCain
Washington, DC.

Dear Senator McCain:

This is in response to your post-hearing question addressed to me in which you asked, "From an employee's perspective, what is the most pressing rail safety concern?"

Without any doubt, the most pressing rail safety concern of railroad employees is fatigue. Fatigue in the railroad industry is caused by many factors. Understaffing, not properly relieving employees after the hours of service has expired, *i.e*, limbo time, irregular work schedules and the absence of a mandatory right of employees to take time off from work when they are exhausted are a few of the contributing factors to the problem of fatigue.

For many years, railroad companies have pressured their employees to work more so that they will need fewer employees. They have applied this pressure through threats and actual discipline assessed against employees who the company feels has not worked enough. As the work force decreases the employees are required to work more. Railroad companies deny many employees' requests for days off. So you have situations existing on a daily basis in which trains are being operated across the country by employees that are suffering from fatigue.

All passenger train engineers have a scheduled time to report to work. If a passenger train engineer is expected to work six hours or more, there is a requirement for an assistant engineer, who is certified to operate the train, to be in the cab of the locomotive with the engineer. These are a safety measures. However, on freight trains, engineers can operate the locomotive for twelve hours with no assistant engineer in the cab of the locomotive and with the additional burden of never knowing when they will required to report for work.

Understaffing in maintenance, signal and dispatching can lead to fatigue because all qualified employees are requested to work more hours or train new employees, which also can be taxing.

A few remedies for these very legitimate safety concerns are a regulation that empowers employees with the absolute right to take time off when they are suffering from fatigue. In addition, railroad companies need to be required to maintain sufficient manpower in all departments. Giving employees a scheduled time to go to work, instead of being "on call" twenty-four-seven, not knowing when you are going to work, increases the risk of employees coming to work fatigued. Empowerment of the employees of the right to take time off after working a certain number of runs would provide for a safer industry. These are just some of the means that could begin to address fatigue in the industry.

I am hopeful that my response to your post-hearing question has provided you with the information you were seeking. We would be glad to meet and discuss this issue further at your convenience.

Very truly yours,

DON M. HAHS
President

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