National Transportation Safety Board

Annual Report
to Congress

2009 ANNUAL REPORT

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National Transportation Safety Board

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A Message from the Chairman of the NTSB

Deborah A.P. Hersman
Chairman

I am pleased to present the 2009 Annual Report to Congress for the National Transportation Safety Board. Recognized internationally for our accident investigation expertise, the NTSB has been in the forefront of transportation safety issues for over 40 years, investigating more than 133,000 aviation accidents and thousands of surface transportation accidents. The 2009 Annual Report presents a snapshot of the agency's work over the last year, providing details of completed and ongoing investigations conducted by our dedicated staff of investigative professionals. The Annual Report also showcases key achievements for the Most Wanted List of Transportation Safety Improvements.

To provide more detail, clarity, and readability to the document, we have made several improvements to the 2009 Annual Report over last year. One example is the inclusion of regional and field location maps as well as accident investigation launch maps, which were added last year. Additionally, each section describes new significant achievements that illustrate how various organizational units of the NTSB contribute to the revised agency strategic objectives, which were published in the *NTSB 2010-2015 Strategic Plan*. Also, the agency "At A Glance" box, which was introduced last year, now provides details on the status of our Most Wanted safety recommendation issue areas along with the number of accident investigation launches, report production statistics, the number of recommendations issued and closed, and staff demographic information. Furthermore, the Planning and Performance section now includes the Organizational Assessment, the overall performance report for the agency. We have updated the appendix highlighting the NTSB's progress in implementing Government Accountability Office recommendations, which includes GAO revised assessment of NTSB from October 2009. Finally, the 2009 Annual Report to Congress includes all new color photographs and numerous graphics, charts, and tables to help illustrate the scope and complexity of our work.

We hope you find the 2009 Annual Report to Congress to be an interesting and informative document, providing a clear presentation of the agency and our activities and accomplishments during 2009.

Sincerely,

Deborah A.P. Hersman

July 1, 2010

Foreword

The National Transportation Safety Board (NTSB) is an independent agency charged with determining the probable cause of transportation accidents and promoting transportation safety. The NTSB investigates accidents, conducts safety studies, evaluates the effectiveness of other government agencies' programs for preventing transportation accidents, and reviews the appeals of enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and the U.S. Coast Guard (USCG), as well as the appeals of civil penalty actions taken by the FAA.

To help prevent accidents, the NTSB develops safety recommendations based on its investigations and studies. These are issued to federal, state, and local government agencies and to industry and other organizations in a position to improve transportation safety. Recommendations are the focal point of the NTSB's efforts to improve the safety of the nation's transportation system.

The NTSB's origins can be found in the Air Commerce Act of 1926, in which the U.S. Congress charged the U.S. Department of Commerce with investigating the causes of aircraft accidents. Later, that responsibility was given to the Civil Aeronautics Board's Bureau of Safety.

In 1967, Congress consolidated all transportation agencies into a new U.S. Department of Transportation (DOT) and established the NTSB as an independent agency placed within the DOT for administrative purposes. In creating the NTSB, Congress envisioned that a single organization with a clearly defined mission could more effectively promote a higher level of safety in the transportation system than the individual modal agencies working separately. Since 1967, the NTSB has investigated accidents in the aviation, highway, marine, pipeline, and railroad modes, as well as accidents related to the transportation of hazardous materials.

In 1974, Congress reestablished the NTSB as a completely separate entity, outside the DOT, reasoning that "…No Federal agency can properly perform such (investigatory) functions unless it is totally separate and independent from any other…agency of the United States." Because the DOT has broad operational and regulatory responsibilities that affect the safety, adequacy, and efficiency of the transportation system, and transportation accidents may suggest deficiencies in that system, the NTSB's independence was deemed necessary for proper oversight. The NTSB, which has no authority to regulate, fund, or be directly involved in the operation of any mode of transportation, conducts investigations and makes recommendations from an objective viewpoint.

NTSB Accident Investigations and Recommendations

⇒ *Since its inception, the NTSB has investigated more than 133,000 aviation accidents and thousands of surface transportation accidents.*

⇒ *To date, the NTSB has issued over 13,100 safety recommendations in various transportation modes to more than 2,500 recipients.*

In 1996, the NTSB was charged with the additional responsibility of coordinating federal assistance to families

affected by a major aviation accident. This was followed in 1998 by the Foreign Air Carrier Act and in 2008 by the Rail Passenger Disaster Family Assistance Act. While originally legislated to provide assistance following major aviation accidents, on a limited basis the program has expanded to provide assistance in all modes of transportation.

In 2000, the agency embarked on a major initiative to increase employee technical skills and make its investigative expertise more widely available to the transportation community by establishing the NTSB Academy. The George Washington University Virginia campus was selected as the Academy's home. The NTSB took occupancy of its new facility in August 2003. On October 1, 2006, the name of the NTSB Academy was changed to the NTSB Training Center to better reflect the internal training aspects of the facility.

Since its inception, the NTSB has investigated more than 133,000 aviation accidents and thousands of surface transportation accidents. On call 24 hours a day, 365 days a year, NTSB investigators travel throughout the country and to every corner of the world to investigate significant accidents and develop factual records and safety recommendations with one aim—to ensure that such accidents never happen again.

To date, the NTSB has issued over 13,100 safety recommendations to more than 2,500 recipients. Because the NTSB has no authority to regulate the transportation industry, its effectiveness depends on its reputation for conducting thorough, accurate, and independent investigations and for producing timely, well-considered recommendations to enhance transportation safety.

In 2009, the NTSB continued to push for safety improvements as 74 recommendations were officially closed after being implemented. These include 42 aviation, 10 highway, 14 marine, 6 railroad, and 2 pipeline safety advances recognized by the Board as being compliant with our recommendations in the past 12 months. They were officially closed with the classifications "acceptable action," or "acceptable alternate action." The average acceptance rate for safety recommendations remained at just over 82 percent.

Another 240 recommendations were issued in 2009: 138 aviation, 51 highway, 23 railroad, 20 marine and 8 pipeline.

NTSB Mission

The NTSB's mission is to promote transportation safety by

- Maintaining our congressionally mandated independence and objectivity;
- Conducting objective, precise accident investigations and safety studies;
- Performing fair and objective airman and mariner certification appeals; and
- Advocating and promoting safety recommendations.

And to assist victims of transportation accidents and their families.

NTSB – 2009 At A Glance	
Established:	April 1, 1967
Number of Employees: HQ Regions	 297 86
Recommendations	
Recommendations Issued	240
Closed Acceptable Status Closed Unacceptable Status	74 27
Status of Most Wanted Issue Areas	
Status of Reponses by Federal Agencies: Rail: Acceptable Response/Slow Progress (Yellow) Marine: Unacceptable Response (Red) Aviation: Unacceptable Response (Red) Aviation: Acceptable Response/Slow Progress (Yellow) Highway: Acceptable Response/Slow Progress (Yellow) Highway: Unacceptable Response (Red)	 1 2 5 2 3 3
Actions Needed by the States: Highway Marine	 4 1
Major Reports and Products Adopted by the Board	
Major Reports Summary Reports Special Investigation Reports Accident Briefs Regional/Field Accident Reports	19 1 2 15 1,604
Accident Launches	
Major Accident Launches:	13
Regional/Field Accident Launches:	195
International Accident Launches:	10
Other Information	
Vehicle Recorder Readouts:	326
Materials Laboratory Examination Reports:	117
Vehicle Performance Reports:	42
Internet Address:	www.ntsb.gov

Note: Selected transportation statistics displayed in many of the textboxes throughout this report were obtained from the ***Pocket Guide to Transportation 2010*** published by the Bureau of Transportation Statistics, Research and Innovative Technology Administration, U.S. DOT, January 2010.

2009 Annual Report

National Transportation Safety Board

Contents

Most Wanted Safety Recommendations

The NTSB's Most Wanted List of Transportation Safety Improvements highlights safety-critical actions that the DOT modal administrations, the U.S. Coast Guard, and the States need to take to help prevent accidents and save lives. Following are description areas that were added to the Most Wanted List in February 2010[1]:

Rail

The NTSB is urging the Federal Transit Administration (FTA) to "Improve Transit Railcar Design." This issue area addresses improved entry by emergency responders, improved exit by passengers, and enhanced crashworthiness of railcars. A railcar's ability to withstand the dynamic forces of an accident is essential to protecting the vehicle's operators, crew, and passengers and to increasing the survivability of an accident. Equally important to survivability is emergency responders' ability to rapidly access, evacuate, and treat vehicle occupants.

Marine

The NTSB is urging the USCG to "Require Safety Management Systems (SMS) for Domestic Vessels." The NTSB has long been concerned about the issue of SMS on board ships, both domestic and foreign, and issues concerning SMS subsystems, such as preventive maintenance. NTSB investigations of domestic operations have highlighted shortcomings in several areas that an SMS could address. The central objectives of an SMS are improved safety practices, and an SMS is widely regarded as the single most important development in maritime safety.

Aviation

The NTSB is urging the Federal Aviation Administration (FAA) to "Improve Oversight of Pilot Proficiency." The issue area addresses the NTSB's concerns with the hiring and training of pilots highlighted by the NTSB's recent Board meeting and report on its investigation of the accident involving a Colgan Air Inc., Bombardier Dash 8-Q400, N200WQ, d.b.a. Continental Connection flight 3407, which crashed during an instrument approach to

1 The Most Wanted List was approved at a Board meeting on February 18, 2010.

runway 23 at the Buffalo-Niagara International Airport, Buffalo, New York. The issue area asks the FAA to: (1) evaluate prior flight check failures for pilot applicants before hiring, and (2) provide training and additional oversight that considers full performance histories for flight crewmembers demonstrating pilot deficiencies.

The NTSB added Safety Recommendations A-08-44 and -45 from the Kirksville, Missouri, accident investigation to the issue area "Reduce Accidents and Incidents Caused by Human Fatigue in the Aviation Industry." These recommendations address fatigue management systems, which constitute a complement to, but not a substitute for, regulations to prevent fatigue.

For federal agencies, each area is color-coded according to the compliance and timeliness of actions taken: green indicates an acceptable response, progressing in a timely manner; yellow indicates an acceptable response, progressing slowly; and red indicates an unacceptable response. (On the following pages, the federal agency issues are color-coded as indicated by the bullets preceding and in the brackets following each issue area.)

NTSB Most Wanted List

19 Federal Most Wanted Safety Recommendations were closed acceptable in the past 5 years.

Most Wanted List

Transportation Safety Improvements 2009-2010

Actions Needed by Federal Agencies

Rail

The Federal Transit Administration should:

Improve Transit Railcar Design [Yellow]

- Provide adequate means for safe and rapid emergency responder entry and passenger evacuation.
- Prevent the telescoping of transit railcars in collisions.
- Remove equipment that cannot be modified to meet the new standards.

Marine

The U.S. Coast Guard should:

Require Safety Management Systems (SMS) for Domestic Vessels [Red]

- Require domestic vessel operators to develop, implement, and maintain a systematic and documented SMS to improve their safety practices and minimize risk.

Reduce Accidents and Incidents Caused by Human Fatigue in the Marine Industry [Red]

- Set working hour limits for mariners based on fatigue research, circadian rhythms, and sleep and rest requirements.

Aviation

The Federal Aviation Administration should:

Improve Oversight of Pilot Proficiency [Red]

- Evaluate prior flight check failures for pilot applicants before hiring.
- Provide training and additional oversight that considers full performance histories for flight crewmembers demonstrating performance deficiencies.

Require Image Recorders [Red]

- Install crash-protected image recorders in cockpits to give investigators more information to solve complex accidents.

Improve the Safety of Emergency Medical Services (EMS) Flights [Red]

- Conduct all flights with medical personnel on board in accordance with stricter commuter aircraft regulations.
- Develop and implement flight risk evaluation programs for EMS operators.
- Require formalized dispatch and flight-following procedures including up-to-date weather information.
- Install terrain awareness and warning systems (TAWS) on aircraft used for EMS operations.

Improve Runway Safety [Yellow]

- Give immediate warnings of probable collisions/incursions directly to flight crews in the cockpit.
- Require specific air traffic control (ATC) clearance for each runway crossing.
- Require operators to install cockpit moving map displays or an automatic system that alerts pilots when a takeoff is attempted on a taxiway or a runway other than the one intended.
- Require a landing distance assessment with an adequate safety margin for every landing.

Reduce Dangers to Aircraft Flying in Icing Conditions [Red]

- Use current research on freezing rain and large water droplets to revise the way aircraft are designed and approved for flight in icing conditions.
- Apply revised icing requirements to currently certificated aircraft.
- Require that airplanes with pneumatic deice boots activate the boots as soon as the airplane enters icing conditions.

Improve Crew Resource Management [Yellow]

- Require commuter and on-demand air taxi flight crews to receive crew resource management training.

Reduce Accidents and Incidents Caused by Human Fatigue in the Aviation Industry [Red]

- Set working hour limits for flight crews, aviation mechanics, and air traffic controllers based on fatigue research, circadian rhythms, and sleep and rest requirements.
- Develop a fatigue awareness and countermeasures training program for controllers and those who schedule them for duty.
- Develop guidance for operators to establish fatigue management systems, including a methodology that will continually assess the effectiveness of these systems.

Highway

The Federal Motor Carrier Safety Administration should:

Prohibit Cell Phone Use by Motorcoach Drivers [Yellow]

- Prohibit commercial driver's license (CDL) holders driving under the authority of the passenger-carrying or school bus endorsement from using a cellular telephone.

Require Electronic Onboard Data Recorders to Maintain Accurate Carrier Records on Driver Hours of Service [Red]

- Improve collection and maintenance of data concerning hours of service (HOS) of motor carrier drivers by requiring use of electronic onboard recorders (EOBRs).

Improve the Safety of Motor Carrier Operations [Red]

- Prevent motor carriers from operating if they put vehicles with mechanical problems on the road or unqualified drivers behind the wheel.

Prevent Medically Unqualified Drivers from Operating Commercial Vehicles [Yellow]

- Establish a comprehensive medical oversight program for interstate commercial drivers.
- Ensure that examiners are qualified and know what to look for.
- Track all medical certificate applications.
- Enhance oversight and enforcement of invalid certificates.
- Provide mechanisms for reporting medical conditions.

The National Highway Traffic Safety Administration should:

Prevent Collisions by Using Enhanced Vehicle Safety Technology [Yellow]

- Reduce rear-end collisions through use of adaptive cruise control and collision warning system technologies.

Enhance Protection for Motorcoach Passengers [Red]

- Redesign motorcoach window emergency exits so passengers can easily open them.
- Issue standards for stronger bus roofs and require them in new motorcoaches.
- Devise new standards to protect motorcoach passengers from being thrown from their seats or ejected when a bus sustains a front, side, or rear impact or rolls over.

Actions Taken by States

Highway

Improve Child Occupant Protection

- Enact State laws requiring booster seats for young children up to age 8.

Enact Primary Seat Belt Enforcement Laws

- Increase number of people who wear seat belts through stronger enforcement laws that don't restrict officers to observing another offense first.

Eliminate Distractions for Young Drivers

- Prohibit use of interactive wireless communications devices by young novice drivers.
- Restrict the number of teen passengers traveling with young novice drivers.
- Enact graduated driver licensing legislation.

Eliminate Hard-Core Drinking Driving

- Enact legislation to reduce crashes involving repeat offenders who drink large amounts of alcohol, including:
- Frequent, statewide sobriety checkpoints.
- More effective measures (sanctions/treatment) for first time arrests with high blood alcohol concentration and repeat offenders.
- Zero blood alcohol requirement for those already convicted of driving while intoxicated.
- Administrative license revocation for refusing to take or failing an evidential test for alcohol.
- Vehicle sanctions for DWI offenders to separate drinking from driving.

- Elimination of plea-bargaining DWI offenses and programs that divert offenders and purge offense records.
- DWI offense records retention for at least 10 years to identify repeat offenders.
    - Special sanction court-based programs such as DWI courts for hard core DWI offenders.

Marine

Enhance Recreational Boating Safety

- Require mandatory education of boat operators.
- Require use of life jackets by children.

Most Wanted Successes

The following are examples of the cumulative effect of actions taken in response to safety recommendations included on the Most Wanted List over the past 5 years:

- Twenty safety recommendations on the federal portion of the Most Wanted List have been closed in an acceptable status in the past 5 years.
- The issue area "Reduce Accidents and Incidents Caused by Human Fatigue in the Pipeline Industry" was removed from the Most Wanted List as a result of rulemaking action by the Pipeline and Hazardous Materials Safety Administration (PHMSA).
- The issue area "Enhance Protection for School Bus Passengers" was removed from the Most Wanted List as a result of rulemaking action by the National Highway Traffic Safety Administration (NHTSA).
- Thirty-three legislative/regulatory changes were implemented in 2009 related to safety recommendations on the state portion of the Most Wanted List.

NTSB Most Wanted List

Two issue areas were removed from the Most Wanted List of Transportation Safety Improvements in 2010:

⇒ *Reduce Accidents and Incidents Caused by Human Fatigue in the Pipeline Industry*

⇒ *Enhance Protection for School Bus Passengers*

The NTSB and Congress

The NTSB provided testimony to Congressional committees several times during calendar year 2009. Following is a summary of testimony provided by Board Members and staff. Complete copies of NTSB testimony are available on the agency's website at www.ntsb.gov/speeches/speeches.

Chairman Deborah A.P. Hersman testified before the Subcommittee on Aviation Operations, Safety and Security, Committee on Commerce, Science and Transportation, U.S. Senate, on the reauthorization of the NTSB on October 29, 2009. The Chairman's testimony highlighted the agency's accomplishments in fiscal year (FY) 2009; outlined the need for clarifying technical, as well as substantive, changes to the agency's statute; and the agency's staffing and funding needs through FY 2014.

NTSB and Congress

The Senate Committee on Commerce, Science and Transportation has 25 members.

Chairman Hersman testified at a hearing before the Subcommittee on Aviation, Committee on Transportation and Infrastructure, U.S. House of Representatives, on September 16, 2009, regarding the airspace over the Hudson River and management of uncontrolled airspace corridors. Her testimony addressed the New York terminal airspace, in particular, the Hudson River class B exclusion area; air traffic control procedures; safety issues relative to the August 8, 2009, midair collision over the Hudson River; and five safety recommendations, issued on August 27, 2009, arising from the investigation of that collision.

Board Member Hersman testified before the Subcommittee on Federal Workforce, Postal Service, and the District of Columbia of the Committee on Oversight and Government Reform, U.S. House of Representatives, on July 14, 2009, regarding the June 22, 2009, Washington Metropolitan Area Transit Authority (WMATA) Metrorail accident. Her testimony summarized the factual information uncovered by the investigation as of July 14, 2009, and included the ongoing work of the agency's technical groups in examining and documenting various factors involved in the Metrorail accident.

Board Member Hersman testified before the Committee on Commerce, Science, and Transportation, U.S. Senate, on July 8, 2009, regarding her nomination to be a Board Member and Chairman of the NTSB.

Board Member Hersman testified before the Subcommittee on Railroads, Pipelines, and Hazardous Materials, Committee on Transportation and Infrastructure, U.S. House of Representatives, on May 14, 2009, regarding safety issues involving the transportation of hazardous materials. Member Hersman's testimony highlighted NTSB concerns regarding the air transportation of lithium batteries, the hazards of wet lines on highway cargo tanks, and the loading and unloading of hazardous materials from railroad tank cars and highway cargo tanks.

Vice Chairman Christopher A. Hart testified before the Subcommittee on Aviation, Committee on Commerce, Science, and Transportation, U.S. Senate, on September 15, 2009, regarding the August 8, 2009, Hudson River midair collision and the safety of air operations in congested airspace. The Vice Chairman's testimony discussed the New York terminal airspace; the safety of the Hudson River Class B exclusion area; a previously issued agency recommendation regarding visual flight rules flights in the New York terminal airspace; air traffic control procedures; and five newly issued agency recommendations arising from the August midair collision.

Member Robert L. Sumwalt testified before the Subcommittee on Aviation, Committee on Transportation and Infrastructure, U.S. House of Representatives, on April 22, 2009, on the oversight of helicopter emergency medical services (HEMS). Member Sumwalt's testimony included background on HEMS, recent accidents involving these operations, and recommendations made to the FAA to improve HEMS safety and the status of those recommendations.

Member Sumwalt testified before the Subcommittee on Aviation, Committee on Transportation and Infrastructure, U.S. House of Representatives, on February 24, 2009, on the US Airways flight 1549 accident. Member Sumwalt's testimony summarized the NTSB's activities in the investigation to date and included recommendations issued to the FAA and other agencies regarding birdstrikes, bird ingestion by aircraft engines, and bird hazard mitigation.

NTSB and Congress

The House Transportation and Infrastructure Committee has 74 members.

Acting Chairman Mark V. Rosenker testified before the Subcommittee on Aviation, Committee on Transportation and Infrastructure, U.S. House of Representatives, at a hearing on June 11, 2009, on regional air carriers and pilot workforce issues. His testimony addressed issues of flight crew training and experience, sterile cockpit compliance, pilot training records, remedial training for pilots, fatigue management and cold weather operations, as well as related safety recommendations issued to the FAA in these areas. The Acting Chairman's testimony also included a summary of the facts known to date in the February 12, 2009, Colgan Air/Buffalo, New York, aviation accident.

Acting Chairman Rosenker testified before the Subcommittee on Aviation Operations, Safety and Security, Committee on Commerce, Science, and Transportation, U.S. Senate, on June 10, 2009, at a hearing on aviation safety and the FAA's role in the oversight of commercial air carriers. The Acting Chairman's testimony included a summary of the facts known to date in the February 12, 2009, Colgan Air/Buffalo, New York, aviation accident. His testimony addressed issues of flight crew training and experience, airplane performance, sterile cockpit compliance, pilot training records, remedial training for pilots, fatigue management, and cold weather operations, as well as safety recommendations issued to the FAA in these areas.

Member Kathryn O'Leary Higgins testified before the Subcommittee on Commerce, Trade, and Consumer Protection, Committee on Energy and Commerce, U.S. House of Representatives, on May 18, 2009, on existing mandates and emerging issues in auto safety.

Member Higgins' testimony focused on motorcoach safety issues, safety recommendations issued to the FMCSA, as well as highway-related safety recommendations calling for driver education for young drivers.

Robert J. Chipkevich, Director, Office of Railroad, Pipeline and Hazardous Materials Investigations, testified on December 8, 2009, before the Subcommittee on Highways and Transit, Committee on Transportation and Infrastructure, U.S. House of Representatives, at a hearing on Public Transit Safety: Examining the Federal Role. His testimony highlighted the limited oversight of rail transit systems, as well as specific safety issues that have been identified through accident investigations, including lack of on-board data event records on rail transit cars, improvements in the crashworthiness of rail transit cars, inadequate testing programs to ensure compliance with transit company operating rules, and deteriorated track conditions.

Mr. Chipkevich also testified on November 16, 2009, at a Baltimore, Maryland, field hearing held by the Subcommittee on Railroads, Pipelines, and Hazardous Materials, Committee on Transportation and Infrastructure, U.S. House of Representatives, on the reauthorization of the Department of Transportation's Hazardous Materials Safety Program. His testimony focused on specific issues of concern to the NTSB involving the hazards of wet lines on highway cargo tanks and the air transportation of lithium batteries.

NTSB and Congress

The NTSB provided testimony to Congressional committees several times during calendar year 2009.

Safety Recommendations and Advocacy

Safety Recommendations and Advocacy (SRA) is responsible for designing and coordinating strategies to implement safety recommendations; the office also includes Transportation Disaster Assistance (TDA), which coordinates support to the families of transportation disaster victims.

Safety recommendations are issued by the NTSB following the investigation of transportation accidents and the completion of safety studies. Recommendations usually address a specific issue uncovered during an investigation or study and specify how to correct the situation. Letters containing the recommendations are sent to the organization best able to address the safety issue, whether it is public or private.

SRA — 2009 At A Glance	
Number of Employees: (SRA & TDA HQ only)	22
Recommendations	
Recommendations Issued	240
Closed in Acceptable Status Closed in Unacceptable Status	74 27
Status of Most Wanted Issue Areas	
Actions Needed by Federal Agencies	47
Actions Needed by the States	33
Major Reports and Products Adopted by the Board	
Most Wanted List of Transportation Safety Improvements	1
Accident Launches	
Major Accident Launches: (TDA) Aviation Highway Marine Rail	 3 1 1 2
Other Accident Launches: (TDA) Regional Aviation	1

SRA's advocacy related outputs include the following:

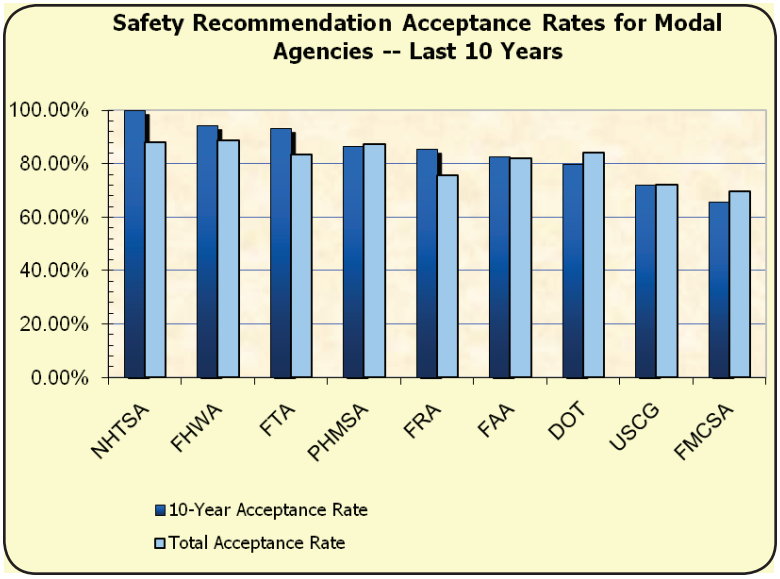
- Most Wanted List - Critical changes needed to reduce transportation accidents and save lives.
- Federal Advocacy – Efforts to improve safety by encouraging the Federal DOT modal administrations[2] and Department of Homeland Security USCG to implement the NTSB's recommendations
- State Advocacy - Efforts to improve safety by encouraging states to implement the NTSB's safety recommendations.
- Safety Alerts – Brief information sheets to inform the traveling public, federal, state, and local officials, and transportation operators about safety hazards and practical remedies identified through NTSB accident investigations, safety studies, and recommendations.
- Statistics – Monthly compilation of safety recommendations acceptance rates.

2 Department of Transportation modal agencies include the following: Federal Aviation Administration, Federal Highway Administration, Federal Motor Carrier Safety Administration, Federal Railroad Administration, Federal Transit Administration, National Highway Traffic Safety Administration, and Pipeline and Hazardous Material Safety Administration.

In 2009, the NTSB issued 240 recommendations, including 138 aviation, 51 highway, 23 railroad, 20 marine, and 8 pipeline recommendations. During the year, 74 recommendations were closed with an acceptable status, all having a positive impact on transportation safety.

Many recommendations led to recipients implementing safety improvements and were closed in an acceptable or acceptable alternate status in 2009. Here are some examples:

Aviation. Traffic advisories required for departing and arriving aircraft; the issuance of takeoff clearances prohibited until an aircraft has crossed all runways en route to its departure runway; improved capabilities of flight data recorder systems that are installed on all newly manufactured transport-category aircraft; improved guidance adopted for the operation of Cessna 208 airplanes in icing conditions; minimum icing airspeed limitations adopted in the Saab SF340 airplane flight manual; unmanned aircraft systems revised to prevent inadvertent engine shutdowns and to provide continued electrical power to all systems essential to aircraft control following loss of engine power and/or generator failure; development of an initial minimum equipment list and items required to be operational for the safe operation of the unmanned aircraft system; crew coordination training required for all personnel involved in unmanned aircraft system operations; adoption by all Canadair regional jet operators of incorporated guidance in their double engine failure checklist and associated simulator training, and adoption by Boeing in its Boeing 777 Maintenance Review Board Report of additional tasks and intervals for inspecting Boeing 777 airplane power receptacles.



Highway. Highway safety improved through prohibition of nonemergency parking in clear zones and increased availability of rest area parking; development of a program to collect exposure data for construction work zones on the interstate highway system; occupant restraint systems improved for passengers on small school buses; self-latching devices now required on the seat cushions of small school buses to retain the seats in their installed positions; manufacturers of commercial trucks urged to install low-air-pressure warning devices; motorcoach drivers educated on different types of retarders and

NTSB Safety Recommendation Facts

⇒ *There were 1,132 open safety recommendations at the end of 2009.*

⇒ *The overall acceptance rate for safety recommendations is 82.2 percent.*

⇒ *The majority of NTSB recommendations are issued to the modal agencies comprising the U.S. Department of Transportation.*

their use during low-friction-coefficient road conditions; bridge sufficiency rating system prioritized to include probability of extreme events such as vessel impact; and improvement of passenger carrier safety rating comparisons in the Safety Status Measurement System.

Marine. Passengers and crew on small passenger vessels chartering out of Tillamook Bay required to wear lifejackets when rough bar warnings are in effect; USCG personnel regulations at 46 *Code of Federal Regulations* 10.709 amended to require mariners to report the results of all physical examinations and guidance provided to mariners, employers and mariner medical examiners on mariner physical standards; establishment of a medical record-keeping system to track mariner fitness for duty and the hiring of a physician with an industrial background; guidance established on the effects of over-the-counter pharmaceuticals for mariners and employers; and an educational program established on the effects of over-the-counter pharmaceuticals for mariners and employers.

Railroad. Prohibitions and restrictions instituted that will control the use of cellular telephones and similar wireless communication devices by railroad operating employees while on duty so that such use does not affect operational safety; track safety deficiencies on the Chicago Transit Authority's (CTA) Dearborn subway in the area of a July 11, 2006, derailment adequately repaired and the Regional Transportation Authority strengthened follow-up action for CTA system safety reviews to ensure that the CTA corrects all identified safety deficiencies; prior to commencing operation of the Angels Flight™ funicular railway, a comprehensive review of the design and specifications for its drive system was conducted, then necessary design or component changes were made to ensure that the drive system meets accepted industry standards and engineering practices, its current emergency braking system (acting on the cable drums) was redesigned to allow it to be tested independent of other braking systems, and the organization(s) responsible for operating and maintaining the Angels Flight™ funicular were required to develop and follow detailed operating, inspection, and maintenance procedures to ensure the operational integrity of the system and safety of passengers.

Pipeline. Required pipeline operators to revise their risk-assessment plans whenever it has failed to consider one or more risk factors that could affect pipeline integrity; and published a final rule to regulate controller fatigue.

State and Local Government Outreach

Efforts in 2009 to increase implementation of the NTSB's safety recommendations to the states resulted in the following progress:

1. Improve Child Occupant Protection:
   - Four states (Alaska, Minnesota, Ohio, and Texas) and two territories (Guam and the U.S. Virgin Islands) enacted booster seat legislation.
   - Two states (New York and Rhode Island) upgraded their existing child restraint law.

State and Local Government Outreach

In 2009, to support our recommendations in 17 states and the District of Columbia, NTSB Board Members and staff:

⇒ *testified at 13 legislative hearings, and*

⇒ *participated in 86 conferences or meetings with state advocates or officials.*

2. Enact Primary Seat Belt Enforcement Laws:
   - Four states (Arkansas, Florida, Minnesota, and Wisconsin) enacted primary enforcement seat belt legislation.
   - One state (Louisiana) and one territory (Guam) upgraded its existing primary enforcement seat belt law.

3. Eliminate Distractions for Young Drivers Youth Highway Safety:
   - One state (Arkansas) enacted a comprehensive graduated driver licensing law with a restriction on the number of teenage passengers permitted to ride with a teenage driver.
   - One state (Kansas) enacted legislation to improve its graduated driver licensing law.
   - Two states (Indiana and New York) enacted legislation to improve their passenger restriction.
   - Three states (Arkansas, Kansas, and Mississippi) enacted legislation prohibiting the use of wireless communication devices by young drivers. Two states (Colorado and Indiana) enacted legislation prohibiting the use of wireless communication devices by drivers under age 18.

4. Eliminate Hard Core Drinking Driving:
   - Two states (Arkansas and Oregon) implemented elements of the NTSB's hard core drinking driving recommendation. Another seven states (Florida, Hawaii, Maryland, Missouri, Nebraska, Washington, and Wyoming) strengthened elements that they had already implemented.

5. Enhance Recreational Boating Safety:
   - One state (North Carolina) enacted a boating safety education mandate.

Safety Alerts

Safety alerts highlight for the traveling public and transportation community transportation safety improvements that are identified by the NTSB. The 1- to 2-page handouts define the transportation hazard, give statistics on the problem, and provide ways to avoid or mitigate these problems based on the NTSB's investigations. Safety alerts address a range of topics in highway, marine, and aviation safety including occupant protection in motor vehicles, impaired driving, recreational boating safety, controlled flight into terrain in visual conditions, and aircraft icing on the ground and in flight.

Safety Alerts

⇒ *In 2009, the NTSB continued to promote improvements through its 14 Safety Alerts.*

Key Challenges

- Increasing the NTSB's presence in state legislatures to elevate the priority of highway safety at the state level and ensure that these issues are fully understood.

- The NTSB has investigated a series of transit-related accidents, most recently the collision of two WMATA trains near the Fort Totten Station, and issued several related safety recommendations. The FTA, however, has repeatedly indicated that it lacks the authority to implement several critical NTSB safety recommendations. The Secretary of Transportation testified on December 8, 2009, in support of a proposal to address this problem, and the NTSB recently added the issue area, *Improve Transit Railcar Design* to the Most Wanted List.
- Personnel losses within Safety Recommendations and Advocacy continue to present challenges in carrying out the mission of the agency. Due to fiscal constraints, the office could not replace three individuals, including the agency's expert on impaired driving issues. Hiring challenges also impeded the office's ability to replace the database manager of the Safety Recommendations Information System. In addition, only one safety recommendations specialist has responsibility for addressing more than 250 open non-state highway safety recommendations and 7 issue areas on the federal portion of the Most Wanted List.
- Length and complexity of the rulemaking process has resulted in federal agencies frequently not taking actions recommended by the NTSB in a timely manner. NTSB is challenged to ensure that the rulemaking process does not hamper the successful implementation of recommendations.

Significant Outcomes and Achievements

- The NTSB continued to support nine state outreach coalitions (California, Hawaii, Illinois, Maine, Maryland, Massachusetts, North Carolina, Virginia, and Wisconsin) that are seeking enactment of the recreational boating recommendations on the Most Wanted List.
- As of March 2010, 48 states, the District of Columbia, Puerto Rico, and the U.S. Virgin Islands have enacted laws or regulations requiring children to wear lifejackets. Wisconsin and Virginia still need to enact mandatory lifejacket requirements.
- On July 21, 2009, the FRA issued a notice of proposed rulemaking (NPRM) to provide regulatory guidance and performance standards for the development, testing, implementation, and use of positive train control (PTC) systems for railroads. The Railroad Safety Improvement Act of 2008 mandates that widespread implementation of PTC across a major portion of the U.S. rail industry be accomplished by December 31, 2015. The FRA's NPRM is on schedule with this deadline.
- After several years of resistance to NTSB recommendations asking for specific air traffic control clearances before aircraft crossed each runway, the FAA initiated action to address this critical safety issue.

Examples of Successfully Implemented Safety Recommendations

- Four states (Arkansas, Florida, Minnesota, and Wisconsin) enacted laws authorizing primary enforcement of their mandatory seat belt use laws (H-97-2). This is the largest number of states to make such upgrades in several years.
- The FAA took action to improve runway safety by amending Order 7110.65 to mandate traffic advisories for departing and arriving aircraft on intersecting runways (A-00-34) and by issuing Notice JO 7110.487, which also revised Order 7110.65 to prohibit issuing a takeoff clearance until an aircraft has crossed all runways en route to the departure runway (A-07-47).
- U.S. Customs and Border Protection (CBP) took action on a series of safety recommendations addressing the unmanned aircraft system (UAS). The CBP: modified the UAS to ensure that inadvertent engine shutdowns do not occur (A-07-70), required modification to ensure that the transponder continues to provide beacon code and altitude information to air traffic control even if the engine shuts down in flight (A-07-74), reviewed UAS functions and required necessary design changes to ensure that electrical power is available for an appropriate amount of time to all systems essential to unmanned aircraft control following loss of engine power (A-07-75), developed minimum equipment lists and dispatch deviation guides for UAS operations (A-07-82), and required that a backup pilot or another person who can provide an equivalent level of safety as a backup pilot be readily available during the operation of a UAS (A-07-85).

U.S. Transportation Facts

⇒ *Over 304 million Americans rely on safe transportation systems in the United States.*

⇒ *Transportation expenses make up 17 percent of an average household's expenditures.*

⇒ *Approximately 10 percent of the U.S. labor force works in a transportation-related job.*

- NHTSA published a final rule addressing school bus safety that satisfied the intent of two long-open safety recommendations. Specifically, NHTSA's rule required that school bus seat cushion bottoms have a fail-safe latching device to keep them in place during impacts and rollovers (H-00-29). In the same final rule, NHTSA improved occupant restraints systems for small school buses by requiring lap/shoulder belts at all seating positions (H-94-10).
- The USCG amended its personnel regulations (46 CFR 10.709) to require mariners to report the results of all physical examinations and provide guidance to mariners, employers and mariner medical examiners on mariner physical standards (M-05-4). The USCG also established a medical record-keeping system to track mariner fitness for duty and hired a physician with industrial background (M-05-5).
- The USCG established guidance on the effects of over-the-counter pharmaceuticals for mariners and employers (M-00-1) and established an educational program on the effects of over-the-counter pharmaceuticals for mariners and employers (M-00-3).

- The FRA issued Emergency Order No. 26 to restrict on-duty railroad operating employees from improperly using cellular telephones and other distracting electronic and electrical devices so that such use does not affect operational safety (R-03-1).
- PHMSA published a final rule that requires each pipeline operator to implement methods to prevent controller fatigue (P-99-12).

Aviation Safety

The Federal Aviation Act of 1958, as amended, and the Independent Safety Board Act of 1974 placed the responsibility for investigating and determining the probable cause for all civil aviation accidents within the NTSB. Subsequent legislation also authorized the agency to investigate accidents involving public-use aircraft, except those operated by the armed forces and intelligence agencies.

AS — 2009 At A Glance	
Number of Employees: HQ: Regional:	 58 65
Recommendations	
Recommendations Issued	138
Closed in Acceptable Status Closed in Unacceptable Status	42 22
Major Reports and Products Adopted by the Board	
Major Reports: Summary Reports: Special Investigation Reports: Accident Briefs: Regional Accident Reports:	7 0 0 7 1,604
Accident Launches	
Major Accident Launches: Regional Accident Launches: International Accident Launches:	6 178 10

Within the NTSB, the Office of Aviation Safety has the responsibility for investigating aviation accidents and incidents (about 1,600 annually) and for proposing probable cause for the five-member Board's approval. In collaboration with other offices within the NTSB, the office also works to formulate recommendations to prevent the recurrence of similar accidents and incidents and to otherwise improve aviation safety. NTSB investigations routinely examine all factors surrounding an accident or series of accidents or serious incidents, thereby ensuring that regulatory agencies and the industry are given a thorough and objective analysis of actual, as well as potential, deficiencies in the transportation system. Solutions can then be proposed to correct deficiencies that may have caused an accident.

Given the international nature of air transportation and the leading role of the United States in the development of aviation technologies, the NTSB's investigations of domestic accidents and its participation in foreign investigations are essential to the enhancement of aviation safety worldwide. The agency's major aviation accident reports, safety recommendations, and accident statistics are disseminated worldwide and have a direct influence on safety policies domestically and abroad, helping to ensure the safe transportation by air of U.S. citizens and other travelers around the world.

Aviation Facts

⇒ *479 million passengers rely on safe airline transportation to and from the 71 largest airports (in 25 large hub areas)*

⇒ *In 2009, FAA air traffic control facilities handled nearly 40 million aircraft*

The NTSB fulfills U.S. obligations to foreign accident investigations, established by treaty under the auspices of the International Civil Aviation Organization (ICAO), by sending accredited representatives and technical advisors from airframe and engine manufacturers to participate in investigations that involve U.S. interests. The Office of Aviation Safety also maintains liaison and coordination with other government agencies through the U.S. Interagency Group on International Aviation and ICAO.

The headquarters for the Office of Aviation Safety is in Washington, D.C. Four regions operate out of nine office sites around the country. The Eastern Region has office sites located in Atlanta, Georgia; Miami, Florida; and Ashburn, Virginia. Locations for the Central Region are in West Chicago, Illinois; Arlington, Texas; and Denver, Colorado. The Western-Pacific Region has offices located in Seattle, Washington; Gardena, California; and an investigator position in Hawaii. Finally, the Alaska Region operates out of Anchorage, Alaska. Five divisions comprise the headquarters office and reflect the organization of the NTSB's investigative process: Major Investigations, Operational Factors, Aviation Engineering, Human Performance and Survival Factors, and Writing and Editing.

Map of Aviation Safety Regional Offices

For most of the nearly 1,600 commercial and general aviation accident/serious incidents investigated each year, a regional investigator, from one of the nine NTSB regional offices, serves as the investigator-in-charge. However, when the agency is notified of a major aviation accident, it launches a go-team from headquarters; the go-team varies in size depending on the severity of the accident and the complexity of the issues involved. The go-team normally consists of an investigator-in-charge from the Major Investigations division and staff specialists in as many as 14 specialties. Additional specialty areas may be added as required by the investigation. Each staff expert leads a group of other specialists from Government agencies and industry as information is collected and analyzed. NTSB staff experts are designated as group chairmen to coordinate information for their part of the investigation, from on-scene activities through adoption of the final report.

Office of Aviation Safety Facts

⇒ *The office has investigators and support staff, which consists of managers, technical writers and editors, aviation accident analysts, and administrative staff.*

⇒ *In 2009, the office launched on 6 major domestic investigations and 10 foreign accident investigations.*

Operational Factors specialists provide expertise in three disciplines—air traffic control, operations, and weather. Aviation Engineering specialists provide technical skills in the areas of powerplants (engines), structures, systems, and maintenance. Human Performance specialists review the background and performance of those associated with an accident. Survival Factors specialists investigate circumstances that affect the survival of people involved in accidents, including causes of injuries and fatalities, and evacuation.

The formal participation of operators, manufacturers, labor representatives, and regulators as parties to NTSB investigations augments the NTSB's resources and allows first-hand access to specialized information. For example, an aircraft manufacturer is the best source of information on the design of the specific aircraft being investigated. Under appropriate supervision, the NTSB also makes use of outside laboratories and research facilities whenever needed.

Office of Aviation Safety Facts

⇒ *The office completed 7 major reports and held 4 public hearings.*

⇒ *The office has 10 major investigations currently in progress, each of which will be presented to the NTSB Board members for their deliberation at a Sunshine Meeting.*

A public hearing may be convened, generally within a year of an accident, or depositions may be taken to collect additional information and review the investigation's progress. As an investigation is completed, a detailed narrative report is prepared. This report sets forth the facts of the accident, analyzes the investigative record and identifies the probable cause of the accident.

Safety recommendations resulting from major investigations are generally included in the final accident report, although recommendations can be issued at any time during the course of an investigation. Regional investigations will frequently identify safety issues that need to be corrected before they result in other accidents.

Completed Major Aviation Investigations

Midair Collision Between News Helicopters in Phoenix, Arizona

On July 27, 2007, two electronic news gathering helicopters collided in midair while maneuvering to cover a police pursuit in Phoenix, Arizona. Each helicopter was a Eurocopter AS350 and had a pilot-reporter and a photographer on board. All occupants on board both helicopters were killed. The NTSB determined that the probable cause of the accident was both pilots' failure to see and avoid the other helicopter. Contributing to this failure was the pilots' responsibility to perform reporting and visual tracking duties to support their station's reporting operation. Contributing to the accident was the lack of formal procedures for Phoenix-area news gathering pilots to follow regarding the conduct of these operations. Ten safety recommendations were issued to the FAA addressing separation between news gathering

helicopters, methods for improving pilot awareness of other helicopters, the need for meetings between FAA and news gathering personnel to discuss operational procedures, and flight recorder systems for smaller aircraft. The NTSB adopted the report on January 28, 2009.

In-flight Fire and Crash of Cessna 310R in Sanford, Florida

On July 10, 2007, a Cessna 310R, operated by the National Association for Stock Car Auto Racing (NASCAR), crashed while attempting an emergency landing to Sanford Orlando International Airport, Sanford, Florida. Both people onboard and three people on the ground were fatally injured, and four people on the ground were seriously injured. The NTSB determined that the probable causes of the accident were the actions and decisions by NASCAR's corporate aviation division's management and maintenance personnel to allow the accident airplane to be released for flight with a known and unresolved discrepancy, and the accident pilots' decision to operate the airplane with that known discrepancy, a discrepancy that likely resulted in an in-flight fire. Five safety recommendations were issued to the FAA addressing the resetting of circuit breakers, the inspection and maintenance of electrical systems in general aviation aircraft, and the establishment of SMS in general aviation corporate operations. The NTSB adopted the report on January 28, 2009.

Engine Fire Aboard American Airlines MD-82 in St. Louis, Missouri

On September 28, 2007, a McDonnell Douglas MD-82 operated by American Airlines executed an emergency landing at Lambert-St. Louis International Airport in St. Louis, Missouri after experiencing an engine fire. The airplane received substantial damage but none of the 143 people on board

were injured. The NTSB determined that the probable cause of the accident was American Airlines' maintenance personnel's use of an inappropriate manual engine-start procedure, which led to the uncommanded opening of the left engine air turbine starter valve, and a subsequent left engine fire, which was prolonged by the flight crew's interruption of an emergency checklist to perform nonessential tasks. Contributing to the accident were deficiencies in American Airlines' continuing analysis and surveillance system program. Eight safety recommendations were issued to the FAA and one recommendation was issued to American Airlines addressing maintenance of air turbine starter valves, emergency task allocation guidance, training on the use of the pneumatic crossfeed valves, multiple simultaneous emergencies training, guidance on evacuation preparation on the ground and communications between flight and cabin crews during emergency and unusual situations. The NTSB adopted the report on April 7, 2009.

On-Ground Fire Aboard ABX Air Boeing 767 in San Francisco, California

On June 28, 2008, a Boeing 767 operated by Airborne Express, caught fire just aft of the cockpit while the flight crew was preparing to start engines at San Francisco International Airport. No injuries were reported and the aircraft was substantially damaged. The NTSB determined that the probable cause of the accident was the design of the supplemental oxygen system hoses and the lack of positive separation between electrical wiring and electrically conductive oxygen system components. The lack of positive separation allowed a short circuit to breach a combustible oxygen hose, release oxygen, and initiate a fire in the supernumerary compartment that rapidly spread to other areas. Contributing to this accident was the FAA's failure to require the installation of nonconductive oxygen hoses after the safety issue concerning conductive hoses was initially identified by Boeing. Eleven safety recommendations were issued to the FAA and one recommendation was issued to ABX Air addressing the conductivity of oxygen hoses, the FAA's airworthiness directive process, the proximity of oxygen system components to electrical wiring, the potential for passenger reading lights to become an ignition source, smoke detector systems for cargo airplanes, and the effectiveness of ABX Air's continuing analysis and surveillance program. The NTSB adopted the report on June 30, 2009.

Cessna Citation Loss of Control Accident in Oklahoma City, Oklahoma

On March 4, 2008, a Cessna 500 was destroyed upon impact with terrain following a loss of control shortly after takeoff in Oklahoma City, Oklahoma. All five people on board sustained fatal injuries. The NTSB determined that the probable cause of the accident was airplane wing-structure damage sustained during impact with one or more large birds (American white pelicans), which resulted in a loss of control of the airplane. Ten safety recommendations were issued to the FAA addressing certification standards for birdstrikes, inadequate FAA enforcement of wildlife hazard assessments, strategies for pilots to minimize birdstrike damage, and inadequate FAA detection of an improper charter operation. The NTSB adopted the report on July 28, 2009.

Crash of Cessna Citation Medical Transport Flight into Lake Michigan

On June 4, 2007, a Cessna 550 (Citation II), operating as a 14 CFR Part 135 medical transport flight crashed into the waters of Lake Michigan shortly after takeoff from General Mitchell International Airport, Milwaukee, Wisconsin. All six people onboard were fatally injured. The NTSB determined that the probable cause of this accident was the pilots' mismanagement of an abnormal flight control situation through improper actions, including failing to control airspeed and to prioritize control of the airplane, and lack of crew coordination. Contributing to the accident were Marlin Air's operational safety deficiencies, including the inadequate checkrides administered by Marlin Air's chief pilot/check

airman, and the FAA's failure to detect and correct those deficiencies, which placed a pilot who inadequately emphasized safety in the position of company chief pilot and designated check airman and placed an ill-prepared pilot in the first officer's seat. Sixteen safety recommendations were issued to the FAA and one recommendation was issued to the American Hospital Association addressing pilot coordination, image recording systems, autopilot panel design, control yoke wiring installations, identification of circuit breakers for use in emergencies, pitch trim-in-motion warnings, aileron trim systems, FAA appointment of check airmen, and the safety ramifications of an operators' financial health. The NTSB adopted the report on October 14, 2009.

Maryland State Police EMS Helicopter Accident in District Heights, Maryland

On September 27, 2008, a Eurocopter AS365N1, operated by the Maryland State Police (MSP), crashed during a medical evacuation flight. Four people were fatally injured and one person was seriously injured. The NTSB determined that the probable cause of this accident was the pilot's attempt to regain visual conditions by performing a rapid descent and his failure to arrest the descent at the minimum descent altitude during a nonprecision approach. Contributing to the accident were (1) the pilot's limited recent instrument flight experience, (2) the lack of adherence to effective risk management procedures by the MSP, (3) the pilot's inadequate assessment of the weather, which led to his decision to accept the flight, (4) the failure of the Potomac Consolidated Terminal Radar Approach Control (PCT) controller to provide the current Andrews Air Force Base weather observation to the pilot, and (5) the increased workload on the pilot due to inadequate FAA air traffic control handling by the Ronald Reagan National Airport Tower and PCT controllers. Nine safety recommendations were issued to the FAA, the MSP, Prince George's County, all public HEMS operators, and six other organizations whose members are involved in search and rescue activities addressing risk assessments, pilot performance and training, TAWS, air traffic control deficiencies, and emergency response. The NTSB adopted the report on October 27, 2009.

Ongoing Major Aviation Investigations

Map showing Major Aviation Launches During 2009

Midair Collision over Hudson River in New York City

On August 8, 2009, a Piper PA-32 operated by a private pilot, and a Eurocopter AS350 helicopter, operated by Liberty Helicopters, collided in midair over the Hudson River near Hoboken, New Jersey. All three people aboard the airplane and all six people aboard the helicopter were fatally injured.

New Mexico State Police Crash

On June 9, 2009, an Agusta A-109 helicopter, operated by the New Mexico State Police was destroyed after impacting terrain near Santa Fe, New Mexico. Three people were fatally injured and one was seriously injured. The helicopter was involved in a search and rescue mission for a lost hiker.

Pilatus PC-12 Accident in Butte, Montana

On March 22, 2009, a Pilatus PC-12 crashed on approach in Butte, Montana. The personal flight was en route to Bozeman, Montana, but attempted to divert to Butte. All 14 persons on board the airplane were fatally injured.

Colgan Airlines Accident in Clarence Center, New York

On February 12, 2009, Colgan Dash 8-Q400, d.b.a. Continental Connection flight 3407, crashed into a home in Clarence Center, New York, while on approach to Buffalo International Airport. All 49 people on board the airplane and one person on the ground were fatally injured.

Empire Airlines Aerospatiale ATR-42 Accident in Lubbock, Texas

On January 27, 2009, an Aerospatiale ATR-42, operated by Empire Airlines was substantially damaged when it landed short of the runway in Lubbock, Texas. Of the two people on board, one sustained serious injuries and one sustained minor injuries.

Airbus Ditching into the Hudson River near Weehawken, New Jersey

On January 15, 2009, US Airways flight 1549, Airbus Industries A320-214 equipped with CFM engines ditched in the Hudson River near Weehawken, New Jersey, while on takeoff from LaGuardia Airport.

Continental Airlines Boeing 737 Takeoff Accident in Denver, Colorado

On December 20, 2008, a Boeing 737 operated by Continental Airlines, crashed during takeoff from Denver International Airport. There were 37 injuries among the passengers and crew, and no fatalities. The airplane was substantially damaged and experienced a postcrash fire.

Learjet 60 Takeoff Accident in Columbia, South Carolina

On September 19, 2008, a Learjet Model 60 overran the runway while departing Columbia Metropolitan Airport, Columbia, South Carolina. The nonscheduled domestic passenger flight was operating under the provisions of 14 CFR Part 135. Four people onboard sustained fatal injuries, and the other two people onboard suffered serious injuries.

U.S. Forest Service Firefighting Helicopter Accident in Weaverville, California

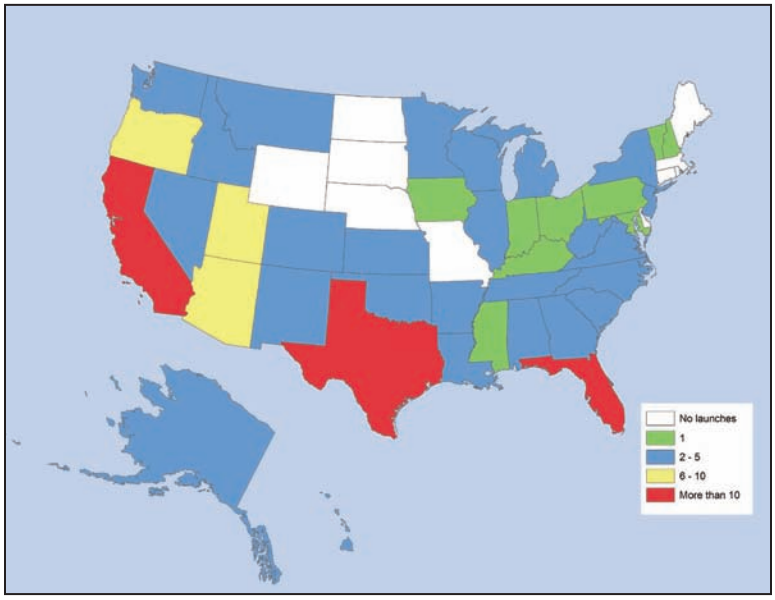
On August 5, 2008, a Sikorsky S-61N helicopter crashed during takeoff near Weaverville, California. The helicopter was being operated under contract to the U.S. Forest Service by Carson Helicopter Services, Inc., as a public-use flight to transport firefighters. Nine people onboard were fatally injured, and four people were seriously injured.

Hawker Beechcraft BAE 125-800A Landing Accident in Owatonna, Minnesota

On July 31, 2008, a Hawker Beechcraft BAE 125-800A was destroyed when it impacted terrain during an attempted go-around at Owatonna Degner Regional Airport, Owatonna, Minnesota. The nonscheduled domestic passenger flight was operating under the provisions of 14 CFR Part 135. All eight people onboard sustained fatal injuries.

Regional Aviation Operations

Regional accident and serious incident investigations are handled much like major investigations; but, since they are typically smaller in scope, a single regional investigator usually conducts these investigations as investigator-in-charge. This investigator, working with representatives from other parties, ensures the investigation includes all the relevant facts, conditions, and circumstances needed to determine the cause of the accident and identify any safety issues. The factual reports of the accidents/serious incidents conducted by the regional investigators are published on the NTSB's website. A brief report, including the probable cause of the accident, is also available once the probable cause has been determined.



Map showing Regional Aviation Launches During 2009

Select Completed Regional Aviation Investigations

In the Eastern Region

CH-601 Zodiac In-Flight Breakup in Polk City, Florida

On April 7, 2008, a Czech Aircraft Works CH 601 Zodiac crashed following an uncontrolled descent near Polk City, Florida. The certificated private pilot/owner was fatally injured. The NTSB determined that the probable cause of this accident was the in-flight failure of the left wing for undetermined reasons. The investigation was one of several involving in-flight structural breakups of Zodiac airplanes in which aerodynamic flutter was implicated and led to a series of recommendations to the FAA to prevent additional in-flight breakups.

In the Central Region

Crash of Cargo Airplane in Columbus, Ohio

On September 1, 2008, a Convair 580 airplane operated by Air Tahoma Inc., crashed while attempting to return to Rickenbacker International Airport in Columbus, Ohio. Three people were fatally injured. The accident flight was the first flight following an extensive maintenance check. The NTSB determined that the probable cause of this accident was the improper (reverse) rigging of the elevator trim cables by company maintenance personnel, and their subsequent failure to discover the misrigging during required post-maintenance checks. Contributing to the accident was the captain's inadequate post-maintenance preflight check.

In-Flight Collision of Emergency Medical Helicopters at Flagstaff, Arizona

On June 29, 2008, two Bell 407 EMS helicopters collided in midair while approaching the Flagstaff Medical Center helipad in Flagstaff, Arizona. Seven people on board the helicopters were fatally injured. The NTSB determined that the probable cause of this accident was both helicopter pilots' failure to see and avoid the other helicopter on approach to the helipad. Contributing to the accident were the failure of N407GA's pilot to follow arrival and noise abatement guidelines and the failure of N407MJ's pilot to follow communications guidelines.

Air Taxi Helicopter Crash in the Gulf of Mexico

Aviation Regional Office Facts

⇒ *In 2009, the regional office staff initiated 1,591 investigations and completed 1,604.*

⇒ *Regional aviation safety staff have launched on an average of 218 regional accident investigations per year over the past 5 years.*

⇒ *In the past 8 years, the number of open regional investigations has been reduced from 2,231 to 623, a 73 percent reduction.*

On December 29, 2007, a Bell 206 helicopter operated by Air Logistics LLC, crashed in the Gulf of Mexico while on approach to an offshore oil platform. All four people on board survived the crash; however, one person eventually drowned. Of the survivors, one was seriously injured and two received minor injuries. The NTSB determined that the probable cause of the accident was the pilot's decision to continue to the destination landing platform in weather conditions below the company's weather minimums and his failure to maintain aircraft control during the approach. Contributing to the passenger fatality and the severity of the occupant injuries were the lack of a passenger briefing on how to deploy the liferaft, the pilot's failure to deploy the liferafts, and the company radio operator's misreporting of the helicopter's "landed" status, which delayed the rescue response.

In the Western Pacific Region

Cessna 172 Crash into a Home in Gearhart, Oregon

On August 4, 2008, a Cessna 172K crashed into a home in Gearhart, Oregon. Both people on the airplane and three people on the ground received fatal injuries, and

three additional people on the ground received serious injuries. The airplane was being operated by a commercial pilot who had rented it the night before from an operator at Seaside Municipal Airport. The NTSB determined that the probable cause of this accident was the pilot's failure to maintain aircraft control during the initial climb after takeoff due to spatial disorientation.

Midair Collision in McCall, Idaho

On May 2, 2008, a Cessna 172N and a Cessna 172 collided inflight over McCall Municipal Airport, McCall, Idaho. Both airplanes were destroyed during the collision sequence and postcrash fire that ensued. Three people received fatal injuries and two sustained serious injuries. Both aircraft were on personal cross-country flights. The NTSB determined that the probable cause of this accident was the failure of the pilot to maintain adequate visual lookout and clearance from another airplane while attempting to land on the same runway. Contributing to the accident was the nonstandard pattern entry by the pilot of the other airplane.

Cessna 208B Crash near Naches, Washington

On October 7, 2007, a Cessna 208B collided with terrain near Naches, Washington. All 10 people on board sustained fatal injuries. The NTSB determined that the probable cause of this accident was the pilot's failure to maintain an adequate airspeed to avoid an aerodynamic stall while maneuvering. Contributing to the accident were the pilot's impaired physiological state due to hypoxia, the pilot's inadequate preflight weather evaluation, and his attempted flight into areas of known adverse weather. Also contributing were the pilot's inadvertent flight into instrument meteorological conditions that included clouds, turbulence, and dark night conditions.

Aviation Facts

⇒ *The air transportation network includes over 5,200 public-use airports.*

⇒ *General aviation fatalities per year have declined from 770 in 1990 to 474 in 2009.*

In the Alaska Region

Charter Flight Crash in Kodiak, Alaska

On January 5, 2008, a Piper PA-31-350 operated by Servant Air, Inc., as an air taxi crashed into the ocean following takeoff from Kodiak, Alaska. Six people were fatally injured, three people sustained serious injuries, and one person sustained minor injuries. The flight was en route to Homer, Alaska. The NTSB determined that the probable cause of the accident was the failure of company maintenance personnel to ensure that the airplane's nose baggage door latching mechanism was properly configured and maintained, resulting in an inadvertent opening of the nose baggage door in flight. Contributing to the accident were the lack of information and guidance available to the operator and pilot regarding procedures to follow should a baggage door open in flight and an inadvertent aerodynamic stall.

Selected Ongoing Regional Aviation Investigations

In the Eastern Region

Cessna 177 Accident in St. Croix, U.S. Virgin Islands

On October 29, 2009, a Cessna 177, crashed into a field shortly after taking off in Christiansted, St. Croix, U.S. Virgin Islands. All three people on board were fatally injured. The personal flight was conducted under the provisions of 14 CFR Part 91.

Piper PA46 Accident in Milton, Florida

On January 11, 2009, a Piper PA46 was substantially damaged when it impacted terrain in Milton, Florida. The sole occupant, a certificated commercial pilot, exited the airplane while in flight in the vicinity of Birmingham, Alabama, and was not injured. The NTSB is supporting the law enforcement investigation into this accident.

In the Central Region

Cessna R182 Crash in Dougherty, Texas

On June 18, 2009, a Cessna R182 crashed in Dougherty, Texas. Both people on board were fatally injured. Night instrument meteorological conditions prevailed, including thunderstorm, dust storm, brownout, and severe-to-extreme turbulence conditions. The personal cross-country flight departed Houston, Texas, and was en route to Plainview, Texas.

Urban Air Lambada In-Flight Breakup in San Antonio, Texas

On June 13, 2009, an Urban Air UFM-13 Lambada special light sport airplane experienced an in-flight breakup while in cruise flight at 3,500 feet. The pilot subsequently deployed the on board emergency ballistic parachute, which brought the substantially damaged airplane and the pilot safely to the ground. A postaccident examination of the airplane showed the tail section had separated.

Gulfstream 690 Crash near Wray, Colorado

On January 15, 2009, a Gulfstream 690 operated by J-W Operating Company crashed on approach to Wray, Colorado. All three people on board were fatally injured. The repositioning flight departed Denver, Colorado, approximately 30 minutes before the accident.

Pilatus PC-12 Takeoff Accident in Hayden, Colorado

On January 11, 2009, a Pilatus PC-12/45 single-engine airplane crashed after takeoff in Hayden, Colorado. Both people on board were fatally injured. The personal cross-country flight was destined for Chino, California.

Bell 206 Helicopter Crash into Gulf of Mexico near Sabine, Texas

On December 11, 2008, a Bell Helicopter 206L operated by Rotorcraft Leasing Company LLC, crashed into the Gulf of Mexico following inadvertent flight into instrument meteorological conditions near Sabine Pass, Texas. All five people on board were fatally injured. The flight was en route to an offshore drilling platform.

In the Western Pacific Region

Zodiak 601XL In-Flight Breakup near Antelope Island, Utah

On March 3, 2009, a Zodiak 601XL, crashed following an in-flight breakup and uncontrolled descent near Antelope Island, Utah. The pilot, the sole occupant, was killed. Examination of the wreckage found that the left wing was bent upward and folded over the cockpit.

In the Alaska Region

Cessna 185 Accident in Denali National Park, Alaska

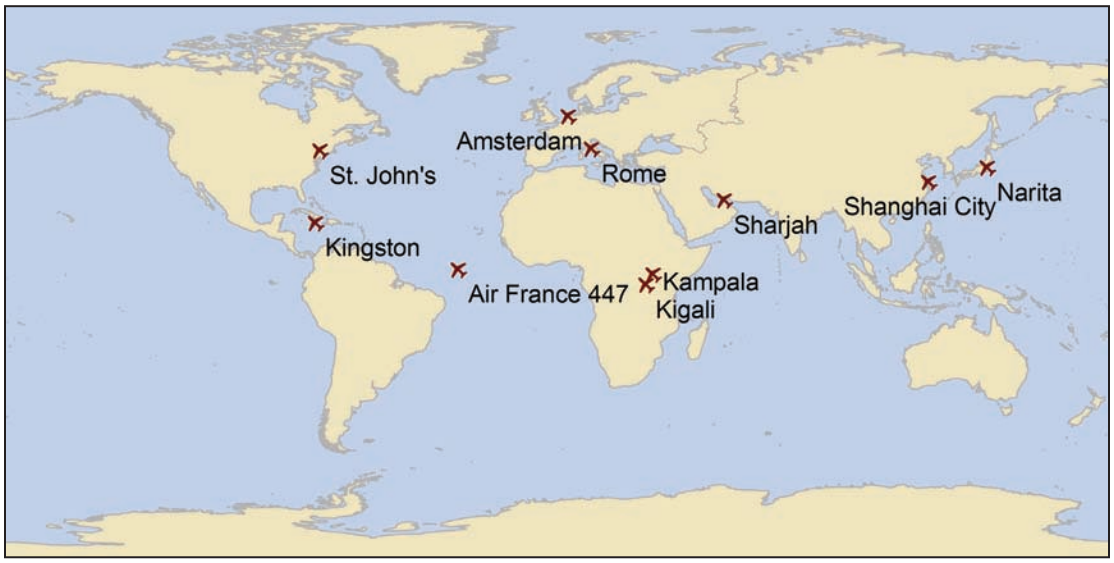
On October 14, 2009, a Cessna 185 airplane crashed during a wolf survey. The passenger, a wildlife biologist, received fatal injuries. The pilot survived with serious burns and was able to hike about 16 miles until he found campers. Rescue was delayed because the airplane was not equipped with a new generation emergency locator transmitter.

Zenair 701 Accident with FAA Inspector near Wasilla, Alaska

On July 14, 2009, a float-equipped, amateur built Zenair CH701 airplane, crashed after taking off from a lake near Wasilla, Alaska. The pilot, an FAA designated pilot examiner undergoing an FAA flight proficiency examination, and an FAA inspector received fatal injuries.

International Aviation Accident Investigations

The NTSB participates in the investigation of accidents and serious incidents conducted by other nations because the United States is signatory to the Convention on International Civil Aviation. The following are examples of ongoing international investigations.



Map showing International Aviation Launches During 2009

American Airlines Boeing 737 Landing Accident in Kingston, Jamaica

On December 22, 2009, an American Airlines Boeing 737-800 overran the runway while landing in Kingston, Jamaica. The flight originated in Miami, Florida. Numerous injuries were reported among the 154 persons on board, and the airplane was substantially damaged. The NTSB sent an accredited representative and operations, airworthiness, systems, and survival factors specialists to assist the Jamaican Civil Aviation Authority with its investigation. Technical advisors from the FAA, Boeing, American Airlines, the Allied Pilots Association, the Association of Professional Flight Attendants, and Transport Workers Union/Air Transport Division also assisted.

Avient Aviation McDonnell-Douglas MD-11 Takeoff Accident in China

On November 28, 2009, a Boeing/McDonnell Douglas MD-11, operated as a cargo flight by Avient Aviation crashed after overrunning the runway during takeoff in Shanghai, China. Three of the four flight crew were fatally injured, the other pilot and three technical crewmembers were seriously injured. The airplane was destroyed by impact forces and fire. The NTSB assigned an accredited representative and airworthiness, recorders, and operations specialists to assist the Civil Aviation Administration of China with its investigation. Technical advisors from the FAA, Boeing, General Electric, and Honeywell also assisted.

Rwandair Regional Jet Landing Accident in Rwanda

On November 12, 2009, a Rwandair Canadian Regional Jet 600 impacted a building after landing in Kigali, Rwanda. The airplane had just taken off from Kigali, but the crew requested a return shortly after takeoff due to a powerplant problem. As the airplane taxied to a parking area, its speed increased and it veered into a building. One passenger was fatally injured. The NTSB assigned an accredited representative to assist the Rwanda Civil Aviation Authority with its investigation. Technical advisors from the FAA and General Electric (the engine manufacturer) also assisted.

Sudan Airways Boeing 707 Accident in United Arab Emirates

On October 21, 2009, a Sudan Airways Boeing 707 crashed shortly after takeoff from Sharjah, United Arab Emirates. All six crewmembers were fatally injured. The NTSB appointed an accredited representative and sent a powerplants specialist to assist the United Arab Emirates General Civil Aviation Authority with its investigation. Technical advisors from the FAA, Boeing, and Pratt & Whitney also assisted.

Air France Airbus A330 Crash into Atlantic Ocean

On June 1, 2009, an Air France Airbus A330 lost contact with air traffic control and crashed into the Atlantic Ocean while en route from Rio De Janeiro, Brazil, to Paris, France. The 12 crewmembers and 216 passengers were fatally injured. The NTSB assigned an accredited representative and systems, powerplants, and recorders specialists to assist the Bureau d'Enquêtes et d'Analyses (France) with its investigation. Technical advisors from the FAA, General Electric, and Honeywell also assisted.

FedEx McDonnell-Douglas MD-11 Landing Accident in Narita, Japan

On March 23, 2009, a FedEx Boeing (McDonnell-Douglas) MD-11 crashed while landing in Narita, Japan. Both pilots received fatal injuries, and the airplane was destroyed. The NTSB sent an accredited representative and operations, airworthiness, and powerplants specialists, to assist the Japanese Transportation Safety Board with its investigation. Technical advisors from the FAA, Pratt & Whitney, Boeing, FedEx, and the Airline Pilots Association also assisted.

Cougar Helicopters Sikorsky S-92 Offshore Accident in Canada

On March 12, 2009, a Cougar Helicopters Sikorsky S-92A crashed into the Atlantic Ocean near St. John's, Newfoundland. Of the 17 people on board, 16 received fatal injuries and one survived with serious injuries. The helicopter was en route to an offshore oil platform in the Hibernia oil field. The NTSB sent an accredited representative to assist the Transportation Safety Board of Canada with its investigation. Technical advisors from the FAA and Sikorsky also assisted.

Ilyushin 76T Cargo Plane Accident in Uganda

On March 9, 2009, an Ilyushin 76T cargo aircraft operated by Aerolift Company of South Africa crashed shortly after takeoff from Entebbe Airport, Uganda. All 11 people on board were fatally injured. The airplane was chartered by Dynacorp International of the United States to support the African Union peacekeeping mission in Somalia. The NTSB assigned an accredited representative to provide professional support and counsel to the Civil Aviation Authority of Uganda in its investigation.

Turkish Airlines Boeing 737-800 Landing Accident in Amsterdam

On February 25, 2009, a Turkish Airlines Boeing 737-800 crashed while on approach to Schiphol Amsterdam Airport in Amsterdam, Netherlands. Of the 134 persons on board the airplane there were 9 fatalities and 120 injuries. The NTSB sent an accredited representative and airplane systems, powerplants, survival factors, and flight recorder specialists to assist the Dutch Safety Board with its investigation. Technical advisors from the FAA, Boeing, and CFM International (GE Engines) also assisted.

Cessna Citation Jet Accident in Italy

On February 7, 2009, a Cessna 650 Citation III was destroyed when it impacted terrain near Trigoria, Italy. The flight had departed from Rome, Italy. The pilot and copilot, the only occupants, were fatally injured. The NTSB assigned an accredited representative to assist the Agenzia Nazionale per la Sicurezza del Volo with its investigation, which was delayed several months because the flight recorders were seized for a judicial inquiry.

Public Hearings and Forums

Public Hearing on Empire Airlines ATR-42 Landing Accident in Lubbock, Texas

On September 22–23, 2009, the NTSB held a public hearing concerning the January 27, 2009, landing accident involving an Empire Airlines ATR-42, which crashed while landing in Lubbock, Texas. The captain was seriously injured and the first officer sustained minor injuries. The hearing addressed issues including crew resource management and decision-making, the airline's training program for flight in icing conditions, the FAA's guidance for flight in icing conditions, and aircraft design modifications to monitor and mitigate effects of icing on aircraft performance.

Public Hearing on Airbus Ditching into the Hudson River

On June 9–11, 2009, the NTSB held a public hearing on the January 15, 2009, accident in which a US Airways Airbus A320 incurred multiple birdstrikes during climb and ditched in the Hudson River. The hearing addressed issues including pilot training regarding ditching and forced landings on water, bird detection and mitigation efforts, certification standards regarding ditching and forced landings for transport-category airplanes, cabin safety training on emergency procedures and equipment, and certification standards for bird ingestion into transport-category airplane engines.

Public Hearing on Colgan Air Q-400 Accident near Buffalo, New York

On May 12–14, 2009, the NTSB held a public hearing on the February 12, 2009, Colgan Air Q400 accident near Buffalo, New York. All 49 persons on board were fatally injured and there was one ground fatality. The hearing addressed issues including icing effect on the airplane's performance, cold weather operations, sterile cockpit rules, crew experience, fatigue management, and stall recovery training.

Public Hearing on Safety of Helicopter Emergency Medical Services (EMS) Operations

Aviation Fact

⇒ *In 2008, air medical services flew for an estimated 700,000 hours, transporting more than 4,000 patients.*

On February 3–6, 2009, the NTSB held a public hearing on the safety of HEMS operations. Testimony was presented on issues including operational structure, flight operations, aircraft safety equipment, flight crew training, and oversight.

Key Challenges

- The Office of Aviation Safety is challenged to accomplish its mission within the constraints of current staffing levels. The 2008 ICAO audit recommended that the United States enable the NTSB to recruit more investigators to ensure the agency can continue conducting in-depth investigations of incidents that are likely to yield safety benefits. However, our funding has not permitted additional hiring action to be taken in response to this recommendation.
- In order to conduct thorough accident investigations, NTSB investigators must stay abreast of the latest technology employed in the aviation industry, such as composite materials, satellite navigation systems, flight recorders, and flight control software. Even when free training is available, travel and per diem costs can be significant. The office's challenge is to identify the available resources and manpower to obtain training in these areas. Another challenge is the difficulty in scheduling training due to the number of accidents and limited number of investigators.
- Under the provisions of ICAO Annex 13, the Office of Aviation Safety plays an important role in the investigation of foreign accidents involving a U.S. operator or a U.S.-manufactured airplane or engines. The number of major airline accidents worldwide has increased sharply, and Aviation Safety staff

participate in an average of 19 major foreign accident investigations every year. This presents a particular challenge since the office must also continue to meet its mandate to investigate all aviation accidents in the United States.

Aviation Facts

⇒ *As of December 31, 2008, there were more than 600,000 active pilots in the U.S.*

⇒ *There are over 231,000 general aviation aircraft operating in the U.S.*

⇒ *There are over 2,800 rotary wing aircraft registered in the U.S.*

- In addition to completing work on seven major investigations in 2010, the Office of Aviation Safety is making plans to hold one public forum, as well as a public symposium.
  - In May, we will hold a public forum titled, *Professionalism in Aviation: Ensuring Excellence in Pilot and Air Traffic Controller Performance*. At this forum, we plan to bring the industry together to discuss the selection of pilots and controllers, training methods, and the development of techniques that support safe practices, such as peer mentoring and support, voluntary reporting programs, and the use of technology in oversight.
  - In the fall of 2010, we will hold a public symposium titled, *Airline Code-Sharing Arrangements and Their Role in Aviation Safety*. The symposium will provide background information on domestic and international code-sharing arrangements and their oversight and provide insight into best practices regarding the role of major airlines in ensuring the safety of regional code-sharing partners.

Significant Outcomes and Achievements

- In 2009, the Office of Aviation Safety held four public hearings. To put that accomplishment in perspective, over the past 10 years, the average number of public hearings was less than one per year, and never have more than two public hearings been held in a year. To have completed seven major reports and held four Public Hearings is a remarkable accomplishment.
- The Office of Aviation Safety is on track to complete the Colgan Airlines accident investigation in less than 1 year. It will be the first time in over 15 years that a major investigation with a public hearing has been completed in less than a year.
- The NTSB, as the State of Design and Manufacture of the aircraft, issued an urgent recommendation to the FAA to address a safety issue uncovered in the UK Air Accident Investigation Branch investigation of the January 2008 accident in which a British Airways Boeing 777 lost engine power and crashed, likely due to an accumulation of ice within the fuel system. In response to the recommendation, action is underway to reduce the risk of recurrence and ultimately adopt design changes to the fuel system.

- Following the investigation of a series of in-flight structural breakups of Zodiac CH-601 XL airplanes designed by Zenair, Inc., the NTSB issued urgent recommendations to prohibit further flight until adequate protection from aerodynamic flutter can be assured.
- Less than 3 weeks after the nine-fatality midair collision between a sightseeing helicopter and a private airplane in New York City, the NTSB issued a series of recommendations for changes to air traffic control and flight operations procedures to improve safety in the high-density traffic environment over the Hudson River.

Highway Safety

In the United States, motor vehicle travel is the primary means of transportation. According to the U.S. Census Bureau, more than 90 percent of U.S. households own at least one motor vehicle and 58 percent own two or more. Commercial motor vehicles also have an enormous effect on our transportation system. Nearly 10 million commercial trucks and buses are registered in the United States. Consequently, highway transportation accidents have a huge negative impact on our nation. According to NHTSA, 37,261 people were killed and 2.3 million people were injured in the estimated 5.8 million police-reported motor vehicle crashes in 2008.

HS — 2009 At A Glance	
Number of Employees: HQ: Regional:	 15 11
Recommendations	
Recommendations Issued	51
Closed in Acceptable Status Closed in Unacceptable Status	10 1
Major Reports and Products Adopted by the Board	
Major Reports: Summary Reports: Special Investigation Reports: Accident Briefs: Regional Accident Reports:	3 0 1 3 0
Accident Launches	
Major Accident Launches: Field Investigation Accident Launches:	3 3

An average of about 102 people died each day in motor vehicle crashes in 2007, meaning that a person died in a crash every 14 minutes. The economic cost alone of motor vehicle crashes was more than $230 billion in 2000 (latest data available), which averaged out to a cost of about $820 for every person then living in the United States.

The NTSB is responsible for investigating selected highway accidents, determining their probable cause, and making recommendations to prevent similar accidents from occurring in the future. In 2009, the NTSB addressed and made safety recommendations concerning such important safety issues in the highway mode as the need for tire pressure monitoring devices, performance and selection guidelines for bridge railings, systems to detect motorcoaches that are not compliant with *Federal Motor Vehicle Safety Standards* (FMVSS) entering and being operated in the United States, guidelines for rural EMS, electronic onboard recorders for hours of service motorcoach occupant protection and roof strength, motor carrier oversight, and pedal misapplication in commercial vehicles.

Map of Highway Safety Field Offices

Completed Highway Investigations

Motorcoach Roadway Departure and Overturn, Mexican Hat, Utah

On January 6, 2008, a 2007 Motor Coach Industries 56-passenger motorcoach with a driver and 52 passengers on board departed Telluride, Colorado, en route to Phoenix, Arizona, as part of a 17-motorcoach charter. The normal route from Telluride to Phoenix along Colorado State Route 145 was closed due to snow, and the lead driver planned an alternate route that included U.S. Route 163/191 through Utah. About 8:02 p.m., the southbound motorcoach was descending a 5.6-percent grade leading to a curve to the left. After entering the curve, the motorcoach departed the right side of the roadway at a shallow angle, striking the guardrail with the right-rear wheel and lower coach body about 61 feet before the end of the guardrail. During the accident sequence, the roof of the motorcoach separated from the body, and 50 of the 53 occupants were ejected. As a result of this accident, 9 passengers were fatally injured, and 43 passengers and the driver received injuries ranging from minor to serious.

The NTSB determined that the probable cause of this accident was the driver's diminished alertness due to inadequate sleep resulting from a combination of head congestion, problems acclimating to high altitude, and his sporadic use of his continuous positive airway pressure sleeping device during the accident trip. The driver's state of fatigue affected his awareness of his vehicle's excessive speed and lane position on a downhill mountain grade of a rural secondary road. Contributing to the accident's severity was the lack of an adequate motorcoach occupant protection system, primarily due to NHTSA's delay in developing and promulgating standards to enhance the protection of motorcoach passengers.

Safety Issues Mexican Hat, Utah

- ⇒ *Driver fatigue*
- ⇒ *Excessive vehicle speed*
- ⇒ *Hours-of-service violations*
- ⇒ *Motor carrier trip planning*
- ⇒ *Motorcoach occupant protection*
- ⇒ *Emergency medical notification and response*

Major safety issues identified by this accident investigation include driver fatigue, excessive vehicle speed, hours-of-service violations, motor carrier trip planning, motorcoach occupant protection, and emergency medical notification and response with regard to large motorcoaches traveling

on rural roads. As a result of its investigation, the NTSB made recommendations to the Federal Interagency Committee on Emergency Medical Services, the Utah Bureau of Emergency Medical Services, the FHWA, the American Association of State Highway and Transportation Officials (AASHTO), the National Association of State Emergency Medical Services Officials, the American Bus Association, the United Motorcoach Association, and Arrow Stage Lines. The NTSB also reiterated one previously issued recommendation to the FMCSA. The NTSB adopted this report on April 21, 2009.

Motorcoach Tire Failure, Run-Off-The-Bridge, and Rollover, Sherman, Texas

On August 8, 2008, a 2002 56-passenger Motor Coach Industries, Inc., motorcoach, operated by Iguala BusMex, Inc., was northbound on U.S. Highway 75 when it was involved in a single-vehicle, multiple-fatality accident in Sherman, Texas. The chartered motorcoach had departed the Vietnamese Martyrs Catholic Church in Houston, Texas, at approximately 8:30 p.m. on August 7, 2008, with a driver and 55 passengers on board, en route to the Marian Days Festival in Carthage, Missouri. When the accident occurred, the motorcoach had completed about 309 miles of the approximately 600-mile-long trip. As a result of the accident, 17 motorcoach passengers died; 12 passengers were found to be dead at the crash site, and 5 others later died at area hospitals. In addition, the 52-year-old driver received serious injuries, and 38 passengers received minor-to-serious injuries.

The NTSB determined that the probable cause of this accident was the failure of the right steer axle tire, due to an extended period of low-pressure operation, which resulted in sidewall, belting, and body ply separation within the tire, leading to loss of vehicle control. Contributing to the severity of the accident was the failure of the bridge railing to redirect the motorcoach

Safety Issues
Sherman, Texas

- ⇒ *Tire pressure monitoring systems on commercial vehicles*
- ⇒ *Criteria for the selection of appropriate bridge railing designs*
- ⇒ *Federal oversight of state commercial vehicle inspections*
- ⇒ *Motorcoach occupant protection systems*
- ⇒ *Oversight of new entrant motor carriers*

and prevent it from departing the bridge. The lack of an adequate occupant protection system contributed to the severity of the passenger injuries.

Safety issues identified during the investigation include the need for tire pressure monitoring systems on commercial vehicles, the need for criteria for the selection of appropriate bridge railing designs, the lack of oversight of the federal commercial vehicle inspections that are delegated to the states, the lack of motorcoach occupant protection systems, and the deficiencies in federal safety oversight of new entrant motor carriers. As a result of the investigation, the NTSB made recommendations to the FHWA, FMCSA, NHTSA, the AASHTO, the American Association of Motor Vehicle Administrators, and Motor Coach Industries, Inc. The NTSB also reiterated previous recommendations to the FMCSA and NHTSA. The NTSB adopted this report on October 27, 2009.

Non-FMVSS-Compliant Motorcoach Rollover, Victoria, Texas

On January 2, 2008, a 2005 Volvo 47-passenger motorcoach, operated by a 42-year-old driver and carrying 47 passengers, was proceeding northbound on U.S. Highway 59 (U.S. 59) about 5 miles south of Victoria, Texas, when the motorcoach driver partially drifted off the right edge of the roadway. Following a series of oversteering maneuvers by the driver, the motorcoach yawed to the left, rotated counterclockwise, and overturned onto its right side. Within 5 minutes, and before emergency responders arrived on scene, a 2001 Ford Ranger pickup truck also traveling northbound on U.S. 59 struck the underside of the motorcoach forward of the rear axle. As a result of the initial motorcoach rollover, 1 passenger was fatally injured, and 46 passengers and the driver received injuries ranging from minor to serious. The driver of the pickup truck sustained minor injuries when the pickup truck struck the undercarriage of the motorcoach.

Safety Issues Victoria, Texas

- ⇒ *Oversight of bus leasing agreements*
- ⇒ *Use of non-FMVSS-compliant buses*
- ⇒ *Motor carrier operating authority issues*
- ⇒ *Motor carrier safety rating methodology*
- ⇒ *New entrant safety assurance program*

The NTSB determined that the probable cause of this accident was the driver's falling asleep, which caused him to partially drift off the road, resulting in oversteer corrections when the driver regained awareness, and subsequent vehicle loss of control and overturn. Contributing to the severity of the

unrestrained passengers' injuries was their striking objects and other passengers inside the motorcoach, as well as the partial ejections that occurred when the motorcoach overturned during the accident.

The investigation identified the following safety issues that the NTSB has not previously addressed: the lack of FMCSA oversight of passenger motor carrier leasing agreements and the registration and use of non-FMVSS-compliant, passenger-carrying vehicles in commercial motor carrier operations in the United States. The investigation also examined continuing deficiencies in motor carrier operating authority issues, safety rating methodology, and the New Entrant Safety Assurance Program. As a result of its investigation, the NTSB made recommendations to the DOT, NHTSA, the FMCSA, the CBP, the American Association of Motor Vehicle Administrators, the International Registration Plan, Inc., and the Commercial Vehicle Safety Alliance (CVSA). The NTSB also reiterated two previously issued recommendations to the FMCSA. This report was adopted on December 8, 2009.

Tanker Truck Overturn and Fire, near Elkridge, Maryland

On January 13, 2004, about 2:45 p.m., a 2003 Freightliner truck tractor in combination with a 2000 Heil cargo tank semitrailer (tanker) was traveling southbound on Interstate 895 near the city of Elkridge, in Howard County, Maryland, on its way to Bethesda, Maryland, to deliver 8,800 gallons of premium grade gasoline. Tire scuff marks indicate that as the tanker approached an overpass (bridge) to Interstate 95 (I-95), it departed from the right traffic lane and went onto the adjacent shoulder. Scrape and gouge marks on the pavement, roadside barrier, and bridge rail further indicate that as the vehicle traveled along the shoulder, it collided with and mounted these roadside barriers before falling 30 feet over the bridge rail and onto the northbound traffic lanes and median of I-95. An explosion and large fire ensued, and four vehicles traveling northbound on I-95 drove into the fire. After firefighters had extinguished the fire, they found five vehicles at final rest positions within the burned area of I-95: the accident tanker, a 2003 Freightliner tractor dry van semitrailer combination unit, a 1999 International tractor flatbed semitrailer combination unit, a 1998 Ford Crown Victoria sedan, and a 1987 Chevrolet pickup truck. The drivers of the accident tanker, the 2003 Freightliner dry van semitrailer, the Ford sedan, and the pickup truck sustained fatal injuries. The driver of the 1999 International tractor escaped uninjured from his burning vehicle.

The NTSB determined that the probable cause of this accident was the failure of the tanker driver to maintain control of his vehicle for undetermined reasons. Contributing to the accident was the narrowed shoulder at the beginning of the overpass and the outdated design of this section of the roadway, including the flared concrete parapet and guardrail transition, which led the tanker to mount the parapet and vault the concrete safety shape barrier bridge rail so that the vehicle fell from the overpass onto the roadway below. This report was adopted on July 30, 2009.

School Bus/Passenger Car Collision and Rollover, Huntsville, Alabama

On November 20, 2006, about 10:10 a.m. central standard time, a 2006 Integrated Conventional Corporation 71-passenger school bus, transporting 40 students from Lee High School to the Huntsville Technology Center, was traveling in the left lane of an elevated two-lane Interstate Highway 565 transition ramp, near exit 19A, in Huntsville, Alabama. A 1990 Toyota Celica was in the left lane behind the school bus, also traveling to the Technology Center. According to witnesses, the Toyota moved to the right lane and accelerated in an attempt to pass the school bus. The driver of the Toyota stated that as he came alongside the school bus, his vehicle began "fishtailing" and became impossible to control. The Toyota veered to the left, striking the right front tire of the school bus. The vehicles remained in contact as they swerved to the left and struck a 32-inch-high cement bridge rail on the left side of the ramp. Physical evidence indicated that the school bus climbed the bridge rail. The school bus driver, who was not wearing his seat belt, was ejected from the school bus onto the roadway. The bus continued along the top of the bridge rail for about 117 feet before rolling over and falling 30 feet to a dirt and grass area beneath the ramp. The school bus landed on its front, bounced, and came to rest upright. Four students in the school bus were fatally injured. Thirty-three students received minor-to-serious injuries. Three students were not injured. The bus driver was seriously injured. After striking the bridge rail, the Toyota continued along the ramp. It curved to the right and came to rest against the north bridge rail. The driver and an 18-year-old passenger were not injured.

The NTSB determined that the probable cause of this accident was a vehicle loss of control during a passing maneuver around a curve by the Toyota driver attempting to overtake the school bus prior to an impending exit both drivers intended to take. Contributing to the severity of the accident was the restricted trajectory of the school bus away from the bridge rail due to the presence of the Toyota, which resulted in the bus overriding the rail and falling 30 feet from the elevated highway access ramp to the ground. The NTSB adopted this report on November 19, 2009.

School Bus Collision with Passenger Vehicle, Milton, Florida

On May 28, 2008, about 9:30 a.m. daylight savings time, a 2002 International/Bluebird 65-passenger, lap-belt-equipped school bus, operated by the Okaloosa County School District and transporting 14 third grade students, the 60-year-old bus driver, and 3 adult passengers on a school-sponsored field trip, was traveling westbound on Interstate 10 (I-10) approximately 10 miles east of Milton, Florida. The school bus was in the right traffic lane of the two-way, four-lane divided highway when it crossed partially into the left passing lane of I-10 westbound and collided with a 2002 Chevrolet Tahoe, which was traveling at an estimated speed of 70 to 75 mph in the left passing lane (the posted speed limit is 70 mph). The school bus was governed at a maximum speed of 55 mph. Postaccident inspection indicated that the Tahoe struck the left rear corner of the bus.

Subsequent to the collision, the Tahoe continued forward and onto the left shoulder and grass median of I-10. The school bus veered to the right, across the right fog line, then went across the inside westbound lane and shoulder and into the center median, where it rolled over. Before coming to rest, the body of the bus partially separated from the chassis. As a result of the accident, the lap/shoulder-belted bus driver and one lap-belted student on the school bus sustained serious injuries; the 3 adult passengers and the other 13 students, all of whom were secured by lap belts, received minor or no injuries. The driver of the Tahoe was uninjured. The NTSB determined that the probable cause of this accident was the school bus driver's failure, for undetermined reasons, to maintain her traffic lane, which resulted in the bus being struck from behind when it drifted into the left lane and into the path of an oncoming faster-moving vehicle. Injury severity was mitigated by the use of lap belts. The NTSB adopted this report on November 12, 2009.

Ongoing Highway Investigations

Map showing Highway Launches During 2009
(*Highway Safety assisted Railroad Safety with the investigation in Cherry Valley, Ilinois.)

Tanker Truck Rollover and Explosion, Indianapolis, Indiana

On Thursday October 22, 2009 about 10:38 a.m. eastern standard time, a 2006 International truck tractor in combination with a 1994 Mississippi Trailer Specification MC331, 11,600-gallon cargo tank semitrailer (MC331) operated by a 73-year-old male was traveling south on Interstate 69. As the truck tractor combination entered the semi-direct connection ramp in the right lane toward Interstate 465 (I-465) south, the truck tractor combination started to encroach into the left lane occupied by a 2007 Volvo passenger car. The driver of the Volvo blew his horn at which time the truck tractor combination moved to the right and onto the shoulder striking the guardrail with the right front of the tractor. The truck tractor combination continued partially on the shoulder when the trailer began to roll to the right. The cargo tank semitrailer struck the guardrail with the right side of the trailer as the tractor semitrailer went under the I-465 northbound overpass. The cargo tank went over the guardrail and slid on its right side into the bridge abutment and pillar of the I-465 southbound overpass. During this time, the tractor separated and rolled onto its right side and caught fire. The tractor came to rest across the I-69 roadway. During the initial impact with the guardrail, the rear of the cargo tank semitrailer lifted and rotated to the right in between the I-465 north and south bound overpass. The front of the cargo tank sustained a small breach that caught fire and then an explosion occurred. The ensuing fire involved eight other vehicles on the I-69 semi-direct connection ramp to I-465 and I-465 overpasses.

As a result of the accident and subsequent fire, the truck tractor driver received serious injuries, and the driver of a vehicle on I-65 also received serious injuries. The occupants of three vehicles on I-465 received minor injuries. The weather was clear and the roadway was dry. The posted speed limit for the semi-direct connection ramp in the vicinity of the accident was 50 mph. The 50 mph posted speed limit sign was located approximately 650 feet prior to the accident.

Tractor Trailer Collision with Stopped Traffic in Miami, Oklahoma

On June 26, 2009, about 1:16 p.m. central daylight time, an eastbound 2008 Volvo truck tractor and a 2009 Great Dane refrigerated semitrailer (combination unit) driven by a 76-year-old truck driver crested a hill on the left lane of I-44 Will Rogers Turnpike as it passed a slower moving combination unit. The operator of the slower moving combination unit stated that as both vehicles crested the hill he observed, ahead of him, traffic congestion and brake lights in both lanes and began to slow. The witness also stated that after the accident truck passed him, it changed back to the right lane, never slowed or applied its brakes, and crashed into the stopped traffic ahead. Additional witness statements estimated the speed of the accident truck at about 70 mph in the posted 75 mph zone, and indicated that brakes were not applied before the accident truck collided with the rear of the traffic queue.

At initial impact, the combination unit struck a 2003 Land Rover SUV, pushing it forward into a 2003 Hyundai Sonata passenger car; the Land Rover continued off to the right where it came to rest on the right-hand grassy right-of-way. The combination unit continued forward approximately 42 feet and collided into the Hyundai, overriding it and pushing it forward about 29 feet to where the combination unit then struck and overrode a 2004 Kia Spectra passenger car. The combination unit and the two passenger vehicles continued forward into the rear of a 2000 Ford Windstar minivan, which was also partially overridden by the combination unit. The Ford minivan was pushed forward into the rear of a 16-foot livestock trailer (loaded with 10 head of sheep) being towed by a 2004 F350 pickup truck. The F350 pickup truck was then pushed forward into a 2008 Chevrolet Tahoe. The combination unit came to final rest on top of the Hyundai, Kia, and a portion of the Ford minivan. From the initial impact to final

rest, the combination unit traveled approximately 270 feet, leaving gouges and friction tire marks on the pavement. At the time of the accident, the weather was clear and the pavement was dry.

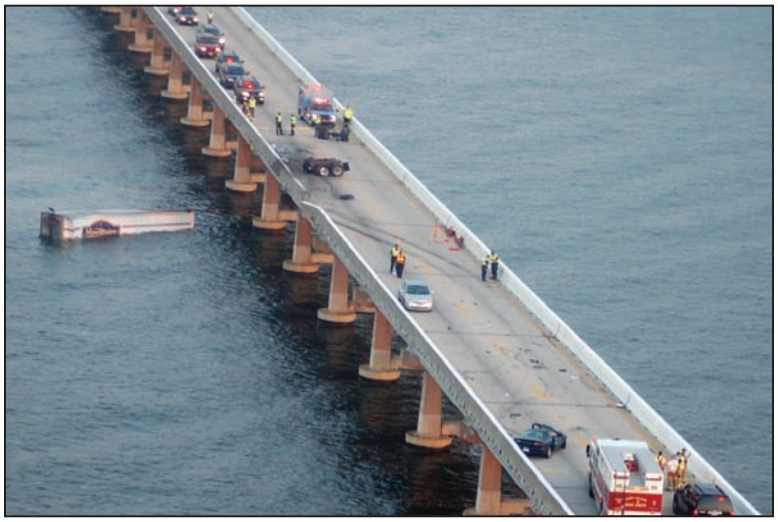
As a result of the collision, 10 occupants in the passenger vehicles were fatally injured (9 passengers were fatally injured at the crash site and 1 passenger died at an area hospital) and 5 passengers received minor to serious injuries. The driver of the combination unit received serious injuries. Four of the passenger cars were destroyed from impact. The Ford F350, livestock trailer and Chevy Tahoe had moderate damage. The Volvo truck tractor sustained extensive damage, and the Great Dane trailer was undamaged.

Medium Size Tour Bus Rollover, Dolan Springs, Arizona

On January 30, 2009, a 2007 Chevrolet/Starcraft 29-passenger medium size bus, operated by DW Tour and Charter and occupied by the driver and 16 passengers, was traveling northbound on US Highway 93. As the bus approached the area of milepost 28 near Dolan Springs, Arizona, the bus drifted left, out of its lane of travel. The driver steered sharply back to the right, crossing both the northbound lanes and entering the right shoulder. The driver subsequently overcorrected back to the left, causing the bus to yaw and cross both northbound lanes. The bus entered a depressed earthen median, overturning 1-1/4 times before coming to rest on its right side across both southbound lanes (see figures 1 and 2). During the rollover sequence, 12 passengers and the driver were fully ejected and two passengers were partially ejected. As a result of the accident, seven passengers sustained fatal injuries, and nine passengers and the driver received injuries ranging from serious to minor. The weather at the time was clear, and the roadway was straight, level, and dry.

Tractor-Semitrailer Rollover/Compromised Bridge Parapet Annapolis, Maryland

The NTSB is continuing its investigation of the August 10, 2008, accident that occurred on the William Preston Lane, Jr., Memorial Bridge (known as the Chesapeake Bay Bridge) in Annapolis, Maryland. A 1997 Chevy Camaro, occupied by the 19-year-old driver and one passenger, was traveling on the south span (referred to as the eastbound span) of the Chesapeake Bay Bridge near Maryland's Eastern Shore when it crossed the center line. At the time of the accident, the bridge's eastbound span was configured to handle two-way traffic because of construction on the westbound span. About that time, a 1999 International tractor with refrigerated semitrailer was traveling westbound. The Camaro struck the left front bumper of the tractor and was deflected away. The left front of the Camaro then struck the truck's #3 drive axle, causing it to dislodge. The Camaro rotated away from the truck and came to rest against the bridge's south parapet. The tractor semitrailer rotated to the left and impacted the south parapet. A 2005 Toyota Prius traveling eastbound was struck in the left side by the left rear of the semitrailer. When the truck struck the parapet, a section approximately 24 feet long was dislodged, and a 12-foot-long section separated and fell into the Chesapeake Bay. After striking the parapet, the tractor semitrailer rolled over into the Chesapeake Bay. The truck driver sustained fatal injuries. The driver of the Camaro sustained serious injuries, and the passenger in the Camaro sustained minor injuries. The two occupants of the Prius were uninjured.



Motorcoach Rollover, Westport, New York

The NTSB continues to investigate a motorcoach rollover accident that occurred in the early evening on August 28, 2006, near the town of Westport, New York. As a 2000 MCI 55-passenger motorcoach carrying 52 passengers was traveling northbound on Interstate 87, descending a 5-percent grade at an estimated 75 mph, it passed a tractor-semitrailer in the right lane, its left front tire failed, and the vehicle veered sharply to the left. The motorcoach went off the pavement, through a three-cable median barrier, and down a dirt and grass depressed center median. The motorcoach struck several large rocks in the median and

Highway Facts

⇒ *There are 3,900 motorcoach companies operating 34,000 motorcoaches in the United States.*

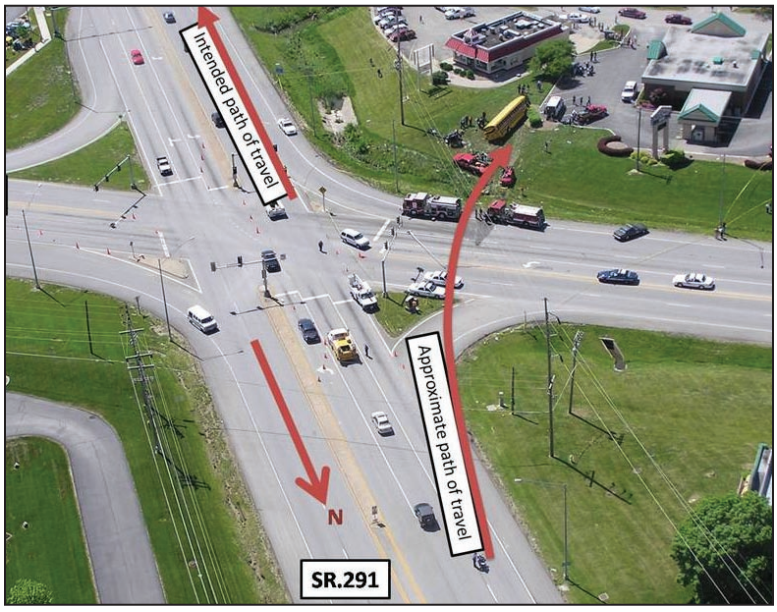
⇒ *There are approximately 4 million active truck and bus drivers registered with the U.S. DOT.*

rolled over, coming to rest on its roof. As a result, 5 people, including the driver, were killed, and 48 passengers were injured.

Completed Special Investigation Report

Pedal Misapplication in Heavy Vehicles

In May 2005, the NTSB began its investigation of a school bus accident that occurred in Liberty, Missouri. During the course of the investigation, information was uncovered that suggested pedal misapplication as a factor in the accident—that is, depressing the accelerator instead of, or in addition to, the brake pedal. The NTSB subsequently investigated four additional accidents—in Falls Township and Newtown, Pennsylvania; Asbury Park, New Jersey; and Nanuet, New York—involving heavy vehicles in which pedal misapplication was determined to be a factor. Despite varying circumstances, these five accidents share common elements. In all five, the drivers either reported a loss of braking or were observed by vehicle occupants to be unsuccessfully attempting to stop the vehicles, though no evidence of braking system failure was found.



Major safety issues identified by this special investigation of pedal misapplication in heavy vehicles include the need for brake transmission shift interlock systems; the need for increased analysis of pedal design configurations; the need for school bus drivers, in particular, to have annual refamiliarization training on all bus types that they might drive; the benefits of positive separation in transit areas to decrease

the risks of unintended acceleration during loading and unloading activities; and the need for event data recorders in school buses and motorcoaches. As a result of this investigation, the NTSB made recommendations to NHTSA, the National Association of State Directors of Pupil Transportation Services, and the National Association for Pupil Transportation. In addition, the NTSB reiterated and reclassified two previously issued recommendations to NHTSA and reclassified one previously issued recommendation to the Community Transportation Association of America. The NTSB adopted this report on September 1, 2009.

Safety Issues
Pedal Misapplication Special Report

⇒ *Brake/transmission interlock systems*
⇒ *Pedal design configurations*
⇒ *School bus drivers annual refamiliarization training*
⇒ *Positive separation in school bus loading and unloading area*
⇒ *Event data recorders in school buses and motorcoaches*

Key Challenges

- Environmental Challenges: There are about 7 million highway accidents per year (19,000/day) causing roughly 3 million injuries and 40,000 fatalities. The Office Highway Safety is staffed with sufficient resources to thoroughly investigate only a small handful of these accidents. As such, we must choose what we investigate very carefully always seeking to uncover issues of national import that go beyond the specific event. In that way, we can make nationwide safety recommendations to prevent similar accidents in the future.

Highway Facts

⇒ *There are almost 47,000 miles of interstate highway and almost 4 million miles of other roads in the United States.*
⇒ *There are more than 600,000 bridges in the United States.*
⇒ *An estimated 3 trillion highway vehicle miles are traveled each year.*

- Investigation Challenges: Our efforts to determine what caused and, as importantly, what did not cause an accident are scientific, painstaking, and time-consuming. Since our small staff functions at near capacity all the time, when we consider launching to a significant new accident, we must weigh the impact and outcome of diverting them from their current investigations. When we do launch to a new event, it can significantly impact ongoing investigations.
- Emerging Issues: The NTSB's emerging issues list focuses on transportation safety issues that have the potential either to become a cause of accidents or to complicate the investigation of future accidents. Such issues include new technologies or new influences on transportation accidents that must be considered in NTSB highway accident investigations, and our challenge is to be fully knowledgeable on such emerging issues.
- Most Wanted List of Transportation Safety Improvements: Finally, we are always challenged to find innovative means to convince others to implement our recommendations, particularly those related to the Most Wanted List of Safety Improvements.

Significant Outcomes and Achievements

- As a result of our investigation into the Minneapolis Bridge Collapse, the evaluation of bridge design calculations has fundamentally changed. The FHWA is working with AASHTO and the state departments of transportation to update all inspector training, facilitating the use of nondestructive inspection technologies, and has begun a National Cooperative Highway Research Program, with fundamental experimental work and modeling, to address gusset plate design calculations.

Highway Facts

⇒ *Highway fatalities, which account for over 94 percent of all transportation deaths, fell by 3,998 (from 41,259 to 37,261) in 2008.*

⇒ *Traffic deaths on roads in 2009 reached the lowest level since 1954, declining for the 15th consecutive quarter.*

⇒ *The fatality rate per 100 million vehicle road miles has steadily decreased since 1985.*

- Several presentations on the Minneapolis Bridge have been made at international bridge conferences, other federal agencies, and state departments of transportation, which have been very well received with respect to both the safety issues identified and the thoroughness of the NTSB's investigative process.

- As a result of the Office of Highway Safety's continuing efforts to advance the issue of the dangers of driver distraction (highlighted in the 2006 Alexandria, Virginia, motorcoach investigation), increasing numbers of transportation companies, both passenger carrier and commercial freight, are developing and enforcing policies that prohibit their drivers from using a cell phone while operating company vehicles.

- Prepared for and participated in 18 technical working groups and sub-groups involved in developing the detailed technical procedures, standards, and best practices for industry and government to implement NTSB safety recommendations. As a measure of success, 15 recommendations were closed during the year, including recommendations to the CVSA on brake and tire inspections, spring brakes, and reversed air brake lines; to the FMCSA on improving the SafeStat system, and use of engine retarders on low-friction roads; to the FHWA on traffic control strategies in work zones, exposure data for work zones, and low brake air pressure warning switches; and other safety improvements specific to a particular manufacturer, operator, and state or local jurisdiction. In addition, with encouragement from the NTSB participation in the working group, SAE is in the final stages of approving a heavy vehicle event data recorder standard.

Highway Facts

⇒ *There are more than 245 million registered motor vehicles in the United States, including nearly 10 million commercial trucks and buses.*

⇒ *20 percent of U.S. households own 3 or more motor vehicles.*

Marine Safety

Under regulations prescribed jointly by the NTSB and the USCG and a Memorandum of Understanding signed December 18, 2009, the NTSB investigates major marine accidents (except accidents involving only public vessels) on the navigable waters or the territorial sea of the United States, or involving a vessel of the United States. A major marine accident involves the loss of six or more lives; the loss of a self-propelled vessel of over 100 gross registered tons; property damage over $500,000; or a serious threat to life, property, or the environment from hazardous materials. The NTSB also investigates certain accidents involving public and nonpublic vessels; accidents that involve significant issues related to the USCG marine safety functions; accidents that are catastrophic; and accidents indicating recurring safety issues in areas where the states have primary jurisdiction, such as accidents involving recreational boats or commercial vessels that operate solely in state waters.

MS — 2009 At A Glance	
Number of Employees: HQ only:	17
Recommendations	
Recommendations Issued	20
Closed in Acceptable Status Closed in Unacceptable Status	14 4
Major Reports and Products Adopted by the Board	
Major Reports: Summary Reports: Special Investigation Reports: Accident Briefs: Regional Accident Reports:	4 1 0 0 0
Accident Launches	
Major Accident Launches: Field Investigation Accident Launches:	1 5

Given the international nature of the marine transportation system and the number of foreign-registered cruise and cargo ships operating from U.S. ports, the NTSB's investigation of accidents involving both domestic and foreign-registered vessels is essential to the enhancement of marine safety worldwide. In the past, the NTSB has investigated marine accidents involving U.S.-registered ships as far away as the Persian Gulf and the South China Sea. In 2009, no overseas major marine accidents involving U.S.-registered ships were investigated by the NTSB. The NTSB also investigates marine accidents involving foreign-registered vessels operating in U.S. waters. Three of the five marine accident reports adopted in 2009 involved foreign-registered ships. The NTSB also cooperates with foreign marine accident investigation authorities under guidelines established by the International Maritime Organization (IMO).

Marine Facts

⇒ *Recreational boating fatalities have declined 18 percent since 1990.*

⇒ *In the United States, there are over 12 million recreational boats that rely on safe inland and ocean waters.*

Investigators from the NTSB participated on the U.S. delegations to several IMO committees. As international standards are developed, the staff informs IMO of important safety-related issues arising from NTSB investigations and applies staff expertise to assist the U.S. delegations. IMO participation enhances NTSB marine safety investigation capabilities by: a) contributing to the development of safety standards; b) increasing staff exposure to international marine developments; and c) building good working relationships

with technical experts at the USCG, with the U.S. maritime industry and associations, and with foreign governments involved in marine safety and marine accident investigations.

A staff of professional investigators at the NTSB's Washington, D.C., headquarters investigates marine accidents. The staff includes USCG-licensed master mariners, USCG-licensed marine engineers, naval architects, and human performance and survival factors specialists. Marine accident reports contain a detailed accident analysis, probable cause, and safety recommendations that seek to prevent similar accidents or that address major safety deficiencies in the marine transportation system. The Office of Marine Safety and the Office of Research and Engineering may also undertake special studies of specific marine safety issues that generally yield recommendations to federal and state agencies and to the maritime industry.

Office of Marine Safety Facts

⇒ *In 2009, the 17 members of the Office of Marine Safety initiated six new accident investigations, completed five reports, and continued to work on seven accident investigations.*

In 2009, the Office of Marine Safety had 12 positions for investigators. A deputy director was hired to oversee the day-to-day office operations.

Completed Marine Investigations

Allision of Hong Kong-Registered Containership M/V **Cosco Busan** *with the Delta Tower of the San Francisco–Oakland Bay Bridge, San Francisco, California*

On November 7, 2007, the 901-foot-long Hong Kong-registered containership M/V Cosco Busan, operated by Fleet Management Ltd, allided with the fendering system at the base of the Delta support tower of the San Francisco–Oakland Bay Bridge. The ship was outbound from the Port of Oakland in dense fog, carrying a load of 2,529 containers, destined for Busan, South Korea. A San Francisco bar pilot was navigating the ship. The accident was initially reported to have caused only a small oil spill, but revised estimates showed that the Cosco Busan released about 53,500 gallons of heavy fuel oil into the bay. The resulting damage was over $2 million to the ship, $1.5 million to the bridge fendering system, and over $70 million for environmental cleanup.

Safety issues in this accident included medical oversight of the *Cosco Busan* pilot; medical oversight of mariners in general; guidance for vessel traffic service operators in exercising authority to manage traffic; procedures for improving the assessment of oil spills in California waters; and training and oversight of the *Cosco Busan* crew. The NTSB determined that the probable cause of the allision of the *Cosco Busan* with the San Francisco–Oakland Bay Bridge was the failure to safely navigate the vessel in restricted visibility as a result of (1) the pilot's degraded cognitive performance from his use of impairing prescription medications, (2) the absence of a comprehensive predeparture master/pilot exchange and a lack of effective communication between the pilot and the master during the accident voyage, and (3) the master's ineffective oversight of the pilot's performance and the vessel's progress. Contributing to the accident was the failure of the ship's operating company to adequately train the *Cosco Busan* crewmembers before their initial voyage on the vessel, which included a failure to ensure that the crew understood and complied with the company's safety management system. Also contributing to the accident was the USCG's failure to provide adequate medical oversight of the pilot in view of the medical and medication information that the pilot had reported to the USCG. The NTSB adopted the report on February 18, 2009 and issued eight recommendations.

Allision of Bahamas-Registered Tankship M/T **Axel Spirit** *with Ambrose Light, Entrance to New York Harbor*

On November 3, 2007, the 819-foot-long Bahamas-registered tankship M/T *Axel Spirit*, operated by Teekay Shipping Ltd., allided with Ambrose Light, an offshore aid to navigation located near the entrance to New York Harbor. The *Axel Spirit* was near the end of its voyage from Cayo Arcas, Mexico, to Perth Amboy, New Jersey, and was carrying 441,000 barrels of crude oil. The *Axel Spirit* sustained a 60-foot-long indent in the hull on its starboard side above the waterline and damage at the turn of the bilge. The vessel's hull was not punctured, no flooding occurred, and no cargo or fuel was lost. All three legs and the central column of Ambrose Light were damaged, causing the structure to lean. The tower's light beacon also stopped rotating at some point after the allision. Shortly after the accident, a Sandy Hook pilot boarded the *Axel Spirit* for the vessel's remaining transit to Perth Amboy. The pilot did not know that the *Axel Spirit* had struck Ambrose Light because he had not seen the damage to the vessel's hull, nor had the *Axel Spirit* bridge team informed him of the allision. The pilot also had not noticed anything irregular about the operation of Ambrose Light.

Safety issues in this accident included inadequate planning for the transit past Ambrose Light; inadequate bridge team communication during the approach to Ambrose Light; and failure to promptly report the allision and test the crew for alcohol. The NTSB determined that the probable cause of the allision of the *Axel Spirit* with Ambrose Light was the master's failure to use all available resources to determine the vessel's position and course in the transit past Ambrose Light and to adequately communicate his intentions and expectations to the bridge team, which therefore prevented the bridge team from appropriately supporting the master. The NTSB adopted the report on April 7, 2009.

Sinking of U.S. Fish Processing Vessel **Alaska Ranger**, *Bering Sea*

On March 23, 2008, the U.S. fish processing vessel *Alaska Ranger*, operated by Fishing Company of Alaska, sank in the Bering Sea 120 nautical miles west of Dutch Harbor, Alaska. Five of the 47 people on board died in the accident.

Safety issues in this accident included the vessel's unintended movement astern, company operations, postaccident drug and alcohol testing, emergency response, implementation of the USCG's Alternate Compliance and Safety Agreement program, and oversight of U.S. commercial fishing industry vessels. The NTSB determined that the probable cause of the sinking of the *Alaska Ranger* was uncontrolled, progressive flooding due to a lack of internal watertight integrity and to a breach of the hull's watertight envelope, likely caused by a physical rudder loss. Contributing to the loss of life was the vessel's movement astern, which likely accelerated the flooding and caused the liferafts to swing out of reach of many crewmembers. The NTSB adopted the report on September 30, 2009, and issued five recommendations.

Engineroom Fire On Board U.S. Small Passenger Vessel **Queen of the West**, *Columbia River, near Rufus, Oregon*

On April 8, 2008, the 221-foot-long paddlewheel vessel Queen of the West, operated by Majestic America Line, experienced an engineroom fire while on a 7-day river cruise between Astoria, Oregon, and Lewiston, Idaho. The vessel was carrying 124 passengers and 53 crewmembers. Though not required by USCG regulations, the Queen of the West had an automatic fire detection system and a fixed fire suppression system on board. The systems functioned properly alerting the navigation team to the fire and helping to extinguish the flames. The crew was able to contain the fire to the engineroom, and the vessel did not need to be evacuated.

The Queen of the West sustained about $3.9 million in damage. One crewmember was treated for mild hypothermia.

Safety issues in this accident included the importance of having a functioning automatic fire detection system and a fixed fire suppression system on small passenger vessels and the inadequate requirements for small passenger vessels regarding out-of-water survival craft for passengers and crew. The NTSB determined that the probable cause of the fire on board the *Queen of the West* was the failure of a pressurized component on the port main propulsion hydraulic system, resulting in hydraulic oil spraying onto the port engine's exhaust piping and igniting. Contributing to the survivability of the vessel, and to the absence of injury or loss of life, was Majestic America Line's voluntary installation of an automatic fire detection system and a fixed fire suppression system.

As a result of the investigation, one new recommendation and one reiterated recommendation were addressed to the USCG. The NTSB adopted the report on November 17, 2009.

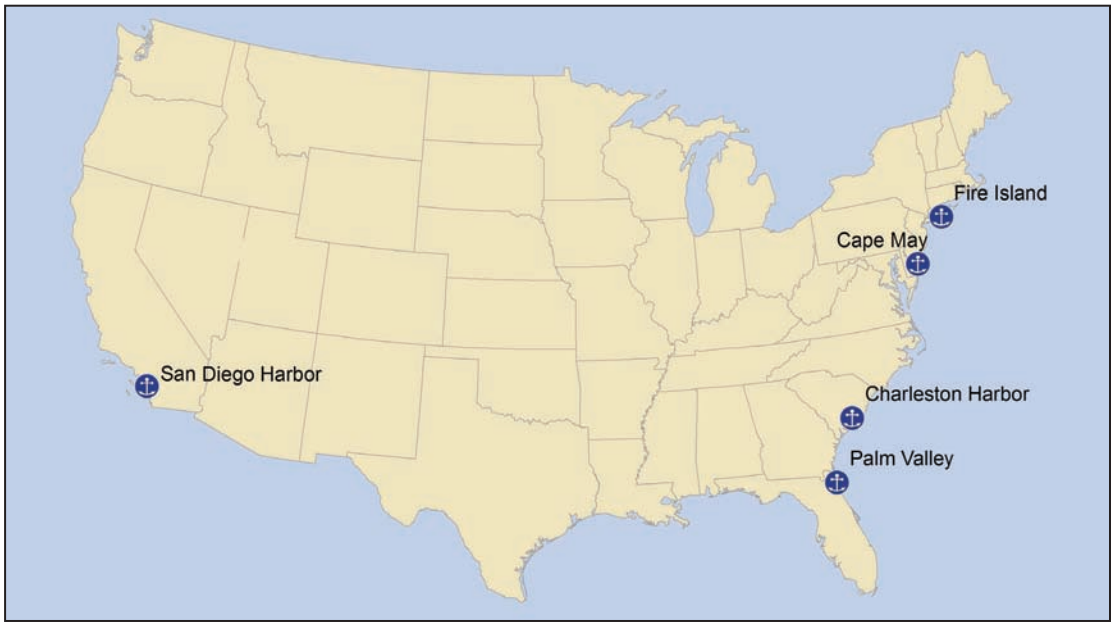
Allision of Liberia-Registered Fruit Juice Carrier M/V **Orange Sun** *with U.S.-Registered Dredge* **New York**, *Newark Bay, New Jersey*

On January 24, 2008, the 672-foot-long Liberia-registered fruit juice carrier M/V *Orange Sun*, operated by Atlanship, allided with a dredge, *New York*, while the juice carrier was outbound under pilotage in Newark Bay. About 25 minutes into the transit, the pilot ordered a 5° starboard course change from 200° to 205° and then reduced the speed to dead slow ahead as the juice carrier approached the dredge. The helmsman on board the *Orange Sun* experienced difficulty trying to steady the ship on the ordered course, and after a brief series of increasing port wheel inputs to arrest the vessel's swing to starboard, he put the wheel to midship, or zero angle. Both the helmsman and the master then made several wheel inputs to try to correct the vessel's heading, including at least three incorrect wheel inputs to starboard, which the pilot had not ordered and which were made without his knowledge. The actions of the helmsman and the master caused the ship to steer toward the dredge, with insufficient time to avoid the allision.

The dredge sustained about $6 million in damage, including salvage cost, and the fruit juice carrier sustained about $330,000 in damage.

Safety issues in this accident included bridge resource management procedures, specifically the lack of effective communication between master and pilot, and poor oversight of the helmsman by supervisors. The NTSB determined that the probable cause of the allision of the *Orange Sun* with the dredge *New York* was the master's failure to appropriately use bridge resource management and to communicate; specifically, to familiarize his bridge crew with and inform the pilot of the vessel's occasional tendency to sheer, a characteristic that he had personally experienced. Contributing to the accident were the inappropriate starboard rudder movements made by both the helmsman and the master, which interfered with the pilot's ability to take appropriate action to prevent the allision. Also contributing was the second officer's failure to accomplish his primary duty as officer of the watch, which was to properly monitor the helmsman. The NTSB adopted the report on December 2, 2009, and issued one recommendation.

Ongoing Marine Accident Investigations



Map showing Marine Launches During 2009

Collision between U.S. Coast Guard Vessel **CG 33118** *and an Unnamed Recreational Vessel, San Diego Harbor, California*

On Sunday, December 20, 2009, about 5:40 p.m. Pacific standard time, the 33-foot-long USCG patrol boat *CG 33118*, with five crewmembers on board, collided with a recreational vessel carrying 13 people in San Diego Harbor. The USCG boat was responding to a reported grounding when it struck and overran the stern of the recreational vessel. As a result of the collision, an 8-year old boy on board the recreational vessel died, and five other people on board sustained serious injuries. No *CG 33118* crewmembers were injured in the accident.

Safety issues in this accident include USCG policy on response to non-distress calls for assistance; visual and radar detectability of small boats; USCG policy, training, and oversight for crews on high-performance boats; USCG changes to vessel operations and dissemination of lessons learned following accidents involving USCG vessels; and use of recording devices on USCG vessels to monitor crew performance.

Collision between U.S. Coast Guard Vessel **CG 25689** *and Small Passenger Vessel* **Thriller 09***, Charleston Harbor, South Carolina*

On December 5, 2009, about 8:21 p.m. eastern standard time, the 25-foot-long USCG patrol boat *CG 25689* collided with a 55-foot-long commercial catamaran passenger vessel, *Thriller 09*, in Charleston Harbor. The USCG patrol boat was traveling through the main harbor channel and the *Thriller 09* was crossing the channel when the collision occurred. The crew of a 41-foot-long USCG utility boat evacuated the 24 passengers from the *Thriller 09* and transported them to Charleston Harbor Marina to await emergency medical personnel. Five passengers from the *Thriller 09* were injured and transported to a local hospital. The USCG boat sustained no damage, and the *Thriller 09* sustained moderate above-the-water-line damage, estimated at less than $75,000. The NTSB launched three investigators to lead the federal investigation.

Safety issues in this accident include the "rules of the road" for marine navigation and oversight of USCG small boat operations.

Fire On Board Small Passenger Ferry **Fire Island Belle**, *Fire Island, New York*

On September 20, 2009, about 4:12 p.m. eastern daylight time, the USCG was notified of an engineroom fire on board the 85-foot-long passenger ferry *Fire Island Belle*. The ferry had 130 persons on board. The fire broke out while the ferry was arriving at Fire Island, New York. The crew was able to moor the vessel and energize its onboard fixed fire suppression system. All passengers were safely disembarked without injury, and no pollution was reported.

Safety issues in this accident investigation include the effectiveness of onboard fire detection and fixed fire suppression systems.

Allision of Unnamed Recreational Vessel with Uninspected Towing Vessel **Little Man II**, *near Palm Valley, Florida*

In the early evening on April 12, 2009, an unnamed recreational vessel with 14 persons on board allided at high speed with the uninspected towing vessel *Little Man II*, which was tied to a dock. As a result of the accident, five people died and nine were seriously hurt.

Safety issues in this accident investigation include operating a vessel while under the influence of alcohol.

Sinking of Fishing Vessel **Lady Mary**, *65 Miles Southeast of Cape May, New Jersey*

On March 24, 2009, about 5:10 a.m. eastern daylight time, the fishing vessel *Lady Mary* sank off Cape May, New Jersey, with seven persons on board. About 0730, the USCG received an alert from an unregistered emergency position-indicating radio beacon (EPIRB). The USCG launched a helicopter to the source location of the EPIRB alert, which was an empty liferaft. On searching further, the helicopter crew located three persons in the water.

Safety issues in this accident investigation include fitting EPIRBs with global positioning systems (GPS). A recommendation to that effect was issued to the Federal Communications Commission in advance of the final accident report.

Sinking of the Fishing Vessel **Katmai,** *Bering Sea, West of Adak, Alaska*

On October 22, 2008, the 73-foot-long fishing vessel *Katmai*, carrying 11 crewmembers, was returning to Dutch Harbor, Alaska, when the vessel lost steering and the crew discovered that the steering compartment and engineroom were flooded. The vessel then listed to starboard and the crew abandoned ship. Four crewmembers survived and seven died, two of whom were never found.

Safety issues in this accident investigation include vessel stability and actions of the master.

Collision Between Passenger Ferry **Block Island** *and Coast Guard Cutter* **Morro Bay**, *Rhode Island Sound, Rhode Island*

On July 2, 2008, the passenger ferry *Block Island* and the USCG cutter *Morro Bay* collided in dense fog on Rhode Island Sound. The ferry was traveling from Point Judith, Rhode Island, to the eastern end of Block Island and was carrying 295 passengers, 8 crewmembers, and two concession stand employees. The cutter was en route from Newport, Rhode Island, to New London, Connecticut. Both vessels were able to slow down and divert to prevent a hard impact, but the ferry's bow collided with the cutter's starboard side, resulting in about $45,000 in damage to the ferry and about $15,000 in damage to the cutter. No injuries resulted from the accident.

Safety issues in this investigation include safe speed in reduced visibility and ineffective use of the radars on board both vessels.

Key Challenges

The Office of Marine Safety is challenged to accomplish our mission within the constraints of current staffing levels. Specific challenges include a) developing our current workforce to take future leadership positions; b) implementing strategies to attract talented individuals to fill these positions; and c) developing an *ISO9001:2008*-compliant quality management system.

Significant Outcomes and Achievements

- The Office of Marine Safety completed the investigation of the *Cosco Busan* accident, a complex and highly visible marine accident, within 15 months from the accident date, despite many challenges relating to investigations by other authorities. The NTSB adopted the report on February 18, 2009.

Marine Facts

⇒ *More than 90,000 merchant and passenger ships dock at U.S. ports. These ships carry more than 9 million shipping containers and 400 million tons of cargo.*

⇒ *There are only 275 U.S.-flag ocean-going ships of over 1,000 gross tons on the water.*

⇒ *As of 2006, some 34,000 people were employed as captains, mates, and pilots of water vessels in the United States.*

- The Office of Marine Safety's participation in the USCG's Marine Board of Investigation into the *Alaska Ranger* sinking helped focus on the propulsion system and its effects on accident survivability. The NTSB adopted the report on September 30, 2009.
- The Office of Marine Safety's participation in the investigation of the *Queen of the West* engineroom fire on the Columbia River resulted in a recommendation to the USCG that out-of-water flotation be carried on all small passenger vessels. The NTSB adopted the report on November 17, 2009.
- The Office of Marine Safety participated in discussions of current safety issues at two meetings of the intergovernmental Marine Accident Investigators International Forum.
- The Office of Marine Safety led two 5-day training classes for marine accident investigators.
- The Office of Marine Safety participated in three IMO undertakings: The revision of the Standards of Training, Certification and Watchkeeping for Seafarers, the Navigation Working Group on Voyage Data Recorders, and the Maritime Safety Committee Working Group on Goal-Based Standards.

Railroad, Pipeline and Hazardous Materials Investigations

Within the NTSB, the Office of Railroad, Pipeline and Hazardous Materials Investigations (RPH) has the responsibility for investigating accidents involving railroads, pipelines, and the transportation of hazardous materials. The office also supports the investigation of accidents in other modes of transportation when the release of hazardous materials is involved. RPH investigates many railroad accidents, including freight train collisions and derailments; however, it places special emphasis on train accidents that involve the traveling public, such as passenger train and rapid rail transit accidents. The NTSB's criteria for investigating a railroad accident include accidents involving a fatality or substantial damage.

RPH — 2009 At A Glance	
Number of Employees:	
HQ:	24
Regional:	11
Recommendations	
Recommendations Issued	31
Closed in Acceptable Status	8
Closed in No Longer Applicable Status	1
Major Reports and Products Adopted by the Board	
Major Railroad Reports:	2
Major Pipeline Reports:	1
Special Investigation Reports:	1
Railroad Accident Briefs:	4
Hazardous Materials Accident Briefs:	1
Accident Launches	
Major Accident Launches - Railroad:	3
Field Investigation Accident Launches:	
Railroad	6
Pipeline	1
Hazardous Materials	2

Under its congressional mandate, the NTSB investigates pipeline accidents involving a fatality or substantial property damage. Additionally, the NTSB may investigate accidents of a recurring nature. Once notified of an accident, the NTSB dispatches to the site an investigator who takes charge of a team composed of investigative personnel from agencies such as the state public utility commission, local fire and police units, pipeline companies, and the U.S. DOT.

RPH also investigates selected accidents involving the release of hazardous materials in all modes of transportation, including fatal accidents or those causing major disruptions to a community. NTSB investigations especially focus on the effects of materials released in public areas, the emergency response by local authorities, and the adequacy of federal standards for the transportation of hazardous materials. When the accident is the result of the transport of a hazardous material, the investigation focuses on the performance of the containers, the preparation for and handling of the material during transport, the health and safety hazards of the material, the markings and hazard communications for the shipments, and the effectiveness of the emergency response.

On the basis of the investigations conducted by this office, the NTSB issues safety recommendations to federal and state regulatory agencies, industry and safety standards organizations, carriers and pipeline operators, equipment and container manufacturers, producers and shippers of hazardous materials, and emergency response organizations.

Railroad Safety

Railroads are one of the nation's safest forms of transportation, but the potential for tragedy exists in railroad operations, as it does in every other mode of transportation. Millions of passengers travel each year on Amtrak and commuter rail systems, often over tracks owned by freight railroads. In addition, rail transit systems transport millions of commuters to and from major metropolitan areas each day.

Freight railroads own and maintain their own infrastructure, including 161,000 miles of track and the associated bridges, buildings, repair shops, and switching facilities. Each year, 40 percent of the Nation's freight moves by rail, more than by any other mode. Railroads move about 37 million carloads each year, including more than 1.7 million carloads of hazardous materials. The amount of railroad freight, particularly intermodal, is continuing to rise.

Map of Railroad Field Offices

In 1967, Congress assigned the primary responsibility for railroad accident investigation to the NTSB. The agency analyzes selected rail accidents in depth, determining the probable cause and issuing safety recommendations to prevent the occurrence of similar accidents. Because of its small staff and limited resources, the Railroad Division does not investigate every rail accident reported to the Federal Railroad Administration (FRA). To use its resources most efficiently, the NTSB has established accident investigation criteria that help highlight accidents that involve significant safety issues.

Railroad Facts

⇒ *Commuter rail systems encompass 3,876 directional route-miles.*

⇒ *Operating under optimal conditions, light rail can carry a peak rate of 20,000 riders per hour.*

The NTSB also conducts studies of significant railroad safety issues, which are often based on a set of accident investigations. In other cases, the studies may be based on analyses of regulations, railroad safety programs and procedures, audit reviews of management and operations practices, or other research. In addition, the NTSB investigates selected accidents involving specific life-saving issues.

Completed Significant Railroad Investigations

Passenger Falls Between Train and Platform on Long Island Rail Road in Queens, New York

On August 5, 2006, a Long Island Rail Road passenger train stopped at the Woodside Station in Queens, New York, to discharge passengers. After the doors were closed, passengers told

the conductor that a passenger was attempting to disembark at the station. The conductor re-opened the train's doors to let her disembark. As she disembarked, she fell between the train platform and the train's door and onto the ground beneath the platform. She crossed under the platform to get to the other side and was struck and killed by a train that was passing through the station.

The NTSB determined that the probable cause of the accident was the passenger falling through a gap between the rail car and the platform while attempting to disembark the train, not following instructions from the train conductor to remain still until help arrived, and then crawling under the platform and into the path of a moving train on the opposite side of the platform. Contributing to the accident was the passenger's alcohol-impaired condition. The NTSB adopted the report on March 13, 2009.

Collision of Amtrak Passenger Train with Norfolk Southern Railway Company Freight Train near Chicago, Illinois

On November 30, 2007, near Chicago, Illinois, an Amtrak passenger train struck the rear end of a Norfolk Southern Railway Company freight train. The locomotive of the three-car Amtrak train came to rest on top of the freight train's last car. The passenger cars did not derail. At the scene, 182 passengers and 5 crewmembers were triaged. Of those, 71 were transported to hospitals and 2 passengers and 1 crewmember were admitted. The estimated damage was $1.3 million.

The NTSB determined that the probable cause of the accident was the failure of the Amtrak engineer to correctly interpret the signal at Englewood interlocking and Amtrak's failure to ensure that the engineer had the competency to correctly interpret signals across the different territories over which he operated. Contributing to the accident was the relief engineer's failure to immediately communicate to the engineer that he had miscalled the signal at Englewood and to stop the train when he did not respond to her expressed concern. Also contributing to the accident was an absence of effective crew resource management between the relief engineer and the operating engineer, which led to their failure to resolve the miscalled signal prior to the collision. Further contributing to the accident was the absence of a positive train control system that would have stopped the Amtrak train when it exceeded restricted speed. The NTSB adopted the report on March 31, 2009.

CSX Train Derailment of Hazardous Materials, Fire, and Evacuation in Painesville, Ohio

On October 10, 2007, an eastbound CSX freight train traveling about 50 mph through Painesville, Ohio, derailed its 31st through 62nd cars. The train crew had not made any train operation changes in more than 1.5 miles before the train's air brakes applied in an undesired emergency application. The crew looked back and saw a ball of fire rising up from the middle of the train. Some of the derailed cars contained hazardous materials. There were seven tank cars of ethanol, one tank car of liquefied petroleum gas, and one car of phthalic anhydride. Among the derailed cars were covered hopper loads of corn, wheat, feed, plastic, and lumber. The ethanol loads and many of the other cars were burning. Twenty-six of the cars were destroyed. The fire and smoke caused by the derailment caused the evacuation of about 14,000 area residents and the closure of a highway near the location. Emergency responders to the accident scene consisted of 4 law enforcement agencies and 35 fire departments. Damage exceeded $1.5 million.

Railroad Facts

⇒ *There are more than 161,000 miles of freight railroads in the United States.*

⇒ *Rail transportation workers held over 180,000 jobs in 2008; about 51,000 were locomotive engineers and operators.*

The NTSB determined that the probable cause of the accident was a broken rail due to a track inspector's installation of an incorrect type of rail joint bar. Contributing to the derailment was CSX Transportation's failure to weld the rail and, thereby, remove the temporary joint before the accident. The Board adopted the report on June 1, 2009.

Rear-end Collision on Massachusetts Bay Transportation Authority Transit in Newton, Massachusetts

On May 28, 2008, a westbound Massachusetts Bay Transportation Authority (MBTA) light rail train, traveling about 38 mph collided with the rear of a westbound MBTA light rail train in Newton, Massachusetts. Each train consisted of two articulated passenger cars. On each train, an operator ran the train from a forward position in the lead car and a trail operator was in the second car. The MBTA estimated that the two trains were carrying between 185 and 200 passengers. The lead car of the striking train was derailed during the collision and sustained substantial damage. The operator of the striking train was killed, and three other crewmembers

sustained minor injuries. Five passengers were injured. One of the passengers was seriously injured and was airlifted to a local hospital. The damage was estimated at $8.6 million.

The NTSB determined that the probable cause of the accident was the failure of the operator of the striking train to comply with the controlling signal indication, likely as a result of becoming disengaged from her environment consistent with experiencing an episode of micro-sleep. Contributing to the accident was the lack of a positive train control system that would have intervened to stop the train and prevent the collision. The NTSB adopted the report on July 14, 2009.

Derailment of a Rail Grinder on Union Pacific Railroad in Baxter, California

On November 9, 2006, a Harsco Track Technologies (Harsco) rail grinder, consisting of 2 locomotives and 11 specialized rail cars, derailed on Union Pacific Railroad track as it descended a significant grade near Baxter, California. Ten of the rail cars derailed. At the time of the accident, eight Harsco employees, one subcontractor, and one Union Pacific conductor-pilot were on board. Two Harsco employees were killed. A fire began after the derailment. Property damages are estimated to be $14.7 million.

The NTSB determined that the probable cause of the accident was the failure of the braking system due to ineffective preaccident maintenance, inspections, and testing and the inappropriate brake recharging technique used by the A-end operator. A contributing factor was the failure of the Federal Railroad Administration to provide adequate safety oversight of rail grinders. The NTSB adopted the report on November 3, 2009.

Track Foreman and Contractor Struck by Amtrak Passenger Train in Providence, Rhode Island

On March 13, 2008, an eastbound Amtrak Acela passenger train en route from New York, New York, to Boston, Massachusetts struck two members of a four-person roadway work group. The accident occurred in Providence, Rhode Island. The roadway work group consisted of a track foreman, two trackmen, and a contractor hired to evaluate concrete ties. Of the two struck men, one was killed and the other was seriously injured.

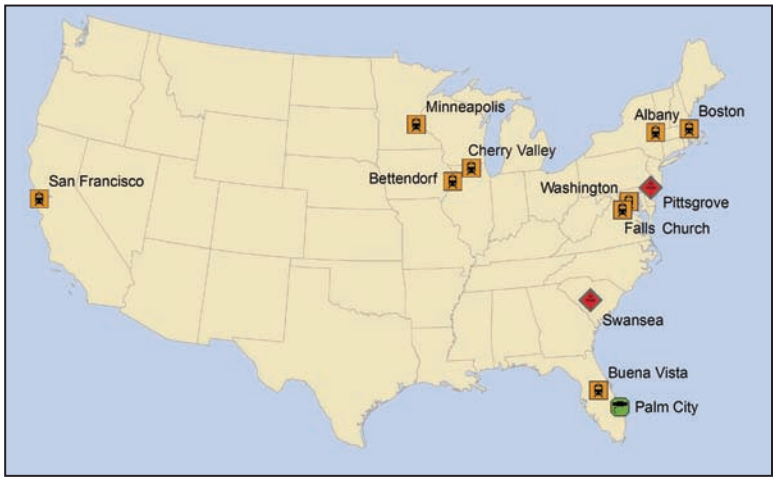
Railroad Facts

⇒ *In fiscal year 2008, Amtrak served over 28 million passengers, representing 6 straight years of record ridership.*

⇒ *Amtrak is operating 1,164 cars and 270 locomotives in its system.*

The NTSB determined that the probable cause of the accident was the foreman's failure to communicate critical changes made to on-track safety protection and to utilize all assigned trackmen as watchmen while working in a hot spot. Contributing to the accident was the watchman's failure to recognize that he was poorly positioned to perform his duties. The NTSB adopted the report on December 15, 2009.

Ongoing Rail Investigations



Map showing Rail, Pipeline and HazMat Launches During 2009

Switchman Struck While Performing Remote Control Switching Operations on a BNSF train near Minneapolis, Minnesota

On December 29, 2009, about 12:31 p.m., a BNSF switchman was struck and killed while performing remote control switching operations on a BNSF train near Minneapolis, Minnesota.

WMATA Rear-end Collision with Standing Train in Falls Church, Virginia

On November 29, 2009, about 4:27 a.m., a six-car Washington Metropolitan Area Transit Authority (WMATA) train struck the rear of a stopped six-car WMATA train at the West Falls Church rail yard in Falls Church, Virginia. No passengers were on either train at the time of the collision. Two WMATA employees (cleaning crew) on board the struck train sustained minor injuries; they were transported to a local hospital, where they were treated and released. The operator of the striking train also was treated and released.

MUNI Rear-end Collision at West Portal Station in San Francisco, California

On July 18, 2009, about 2:50 p.m., two San Francisco Municipal Transportation Agency (MUNI) light rail vehicles (LRV) collided at the West Portal Station in San Francisco, California. Both trains were headed outbound from the West Portal station. As a result of the accident, 48 people were injured. The operator of the striking LRV was the only person to stay overnight in a hospital; the other injured people were treated and released.

Dakota, Minnesota, & Eastern Freight Train Collides with Standing Cars in Bettendorf, Iowa

On July 14, 2009, about 2:00 a.m., a Dakota, Minnesota & Eastern Railway (DM&E) freight train, operating on a track warrant, entered a DM&E yard via a switch that was in the reverse position. The DM&E train collided with cars that had been positioned on a yard track by a BNSF Railway train crew. The collision resulted in the deaths of the two-person DM&E train crew.

Disney Monorail System in Lake Buena Vista, Florida

On July 5, 2009, about 1:20 a.m., two Disney World monorail trains collided near the Ticket and Transportation Center platform within the Disney World Park. An empty 6-car train operated by a pilot (the "pink" or "coral train") was struck by another train (the "purple" train). The purple train, which was operated by a pilot in the forward compartment, was carrying two adults and four children, who sustained minor injuries. The pilot of the purple train was killed; the six passengers and the pilot of the pink train were treated for minor injuries and were released.

Collision Between Two Washington Metropolitan Area Transit Authority Trains in (Fort Totten) Washington, DC

On June 22, 2009, two WMATA trains collided at the Fort Totten Station in Washington, DC. As a result, nine fatalities and multiple injuries occurred.

Freight Train Derailment and Fire in Cherry Valley, Illinois

On June 19, 2009, a CN freight train derailed 19 tank cars containing denatured ethanol in Cherry Valley, Illinois. The 2-locomotives, 114-car train originated in Tara, Iowa, and was en route to Chicago. Thirteen of the derailed tank cars were breached and caught fire, releasing about 323,963 gallons of product. The accident resulted in one fatality, and nine persons were treated for injuries, including two firefighters who sustained minor injuries. About 600 residences within a 1/2-mile radius of the accident scene were evacuated. A subsurface gas pipeline at the site of the derailment was damaged by wreckage impact but did not leak. An estimated 60,000-gallons of the released denatured ethanol entered a tributary of the Rock and Kishwaukee Rivers and resulted in a significant fish kill. Property damage was estimated to be in excess of $4.4 million.

Employee Fatality While Switching Cars at CSX Selkirk Yard in Albany, New York

On May 10, 2009, about 6:38 pm, a CSX Transportation conductor was killed while coupling cars. To couple the cars, he was using a remotely controlled locomotive in CSX's Selkirk yard in Albany, New York.

Collision of Two Massachusetts Bay Transportation Authority Trains in Boston, Massachusetts

On May 8, 2009, about 7:18 p.m., a westbound MBTA light rail passenger train struck the rear of a stopped MBTA light rail passenger train on the MBTA Green Line in Boston, Massachusetts. The accident occurred after the striking train had departed the MBTA Government Center station. Approximately 46 passengers sustained minor injuries.

Transit Shuttle Train Strikes Wall at Miami International Airport

On November 28, 2008, a shuttle train, operating on a concourse guideway, failed to stop at the passenger platform and struck the wall at the end of the guideway in Miami International Airport near Miami, Florida. The three-unit train is a self-propelled, rubber-tired, automated people-mover vehicle. The train is designed to operate in an unmanned automatic mode, but it also has operating control panels at each end that a technician can use to move it in manual mode, if necessary. A technician assigned to monitor the train's operations was in the lead car, and the train was in automatic mode at the time of the accident. The technician and five passengers were injured. A person waiting on the platform also was injured.

Southern California Regional Rail Authority (Metrolink) Passenger Train in Raking Collision with BNSF Railway Company Freight Train near Rialto, California

On November 20, 2008, an eastbound Metrolink passenger train collided with a westbound BNSF freight train near Rialto, California. The Metrolink train consisted of 1 locomotive and 4 passenger cars; the BNSF train consisted of 4 locomotives (2 in the front of the train, and 2 at the rear of the train) and 92 freight cars. The westbound BNSF train was entering a siding from a single main track. The Metrolink train slowed but did not stop, and the corner of the Metrolink locomotive raked the side of the six BNSF cars and two rear locomotives as they moved into the siding. Three of the 15 passengers on the Metrolink train were transported to a hospital, but their injuries were not serious.

Collision of a Southern California Regional Rail Authority (Metrolink) Passenger Train with a Union Pacific Railroad Freight Train near Chatsworth, California

On September 12, 2008, a westbound Southern California Regional Rail Authority (Metrolink) passenger train and an eastbound UP freight train collided head-on near Chatsworth, California. The Metrolink train derailed its locomotive and lead passenger car; the UP train derailed 2 locomotives and 10 cars. As a result of the collision, the Metrolink locomotive was shoved about 50 feet into the lead passenger car. Emergency response agencies reported that 102 injured persons were transported to local hospitals. There were 25 fatalities. Damage is estimated at $10.6 million.

Derailment of Chicago Transit Authority Passenger Cars on Elevated Track in Chicago, Illinois

On May 28, 2008, a southbound Chicago Transit Authority Green Line train, traveling from the 55th Street Station to the Cottage Grove/East 63rd Station derailed on an elevated track in Chicago, Illinois. The train was traveling about 25 miles per hour when it derailed. Three of the train's four cars derailed. Emergency responders evacuated most passengers to track level and then to a stairway leading to the street level. The Chicago Fire Department (CFD) removed some passengers from the train. The CFD reported that 14 of the 24 passengers on the train had minor injuries.

Yard Foreman Struck by CSX Freight Car in Walbridge, Ohio

On April 1, 2008, a yard foreman at Stanley Yard in Walbridge, Ohio, was severely injured when he was struck by a free-rolling freight car. He had been too close to an adjacent yard track when he was struck.

CSX Freight Train Derailment of Hazardous Materials/Fire near Shepherdsville, Kentucky

On January 16, 2007, a CSX freight train derailed 25 tank cars, 12 of which contained hazardous materials, near Shepherdsville, Kentucky. Of the 12 tank cars, 1 had only a residue of chlorine, but the other 11 cars were fully loaded. Of the fully loaded cars, four contained butadiene (a flammable gas) and one contained methyl ethyl ketone (a flammable liquid). As a result of the derailment, three of the derailed tank cars were breached and released significant quantities of butadiene, methyl ethyl ketone, and hydraulic fluid, a nonregulated material. Emergency responders evacuated everyone within a 1-mile radius; as a precautionary measure, a school evacuated approximately 400 students. Approximately 25 residents were treated and released at local hospitals; no railroad employees were injured.

Pipeline Safety

The NTSB is responsible for investigating pipeline accidents that cause a fatality, substantial property damage, or significant environmental impact. The agency may also investigate accidents that highlight safety issues of national importance or involve a selected accident-prevention issue.

Pipeline Facts

⇒ *There are nearly 2.4 million miles of gas and hazardous liquid pipelines in the United States.*

⇒ *In December 2009, the Bureau of Transportation Statistics published its 2007 Commodity Flow Survey. According to this survey, the chemical manufacturing industry was responsible for more than 594 million tons of shipments.*

In 2008, the Pipeline and Hazardous Materials Safety Administration (PHMSA) reported that the United States had approximately 2.35 million miles of natural gas pipeline. PHMSA also reported that natural gas transmission companies operated 301,223 miles of pipeline, while 1,455 distribution pipeline operators had about 1,208,912 miles of mainline and 838,356 miles of service line. In addition, 460 hazardous-liquid pipeline operators managed approximately 168,591 miles of hazardous-liquid pipelines.

In 2009, gas distribution operators reported 158 incidents, which in total caused 51 injuries, 10 fatalities, and property damage of more than $30.2 million. Gas transmission operators reported 131 significant incidents that caused 11 injuries, no fatalities, and property damage of about $62.7 million. Hazardous liquid operators reported 113 significant accidents that caused 4 injuries, 4 fatalities, and $44.6 million of property damage. About 1.9 million gallons of product were spilled, resulting in a net loss of 1.1 million gallons.

Completed Significant Pipeline Investigations

Rupture of Hazardous Liquid Pipeline with Release and Ignition of Propane in Carmichael, Mississippi

On November 1, 2007, at 10:35 a.m. central daylight time, a 12-inch-diameter pipeline segment operated by Dixie Pipeline Company was transporting liquid propane at about 1,405 pounds per square inch, gauge, when it ruptured in a rural area near Carmichael, Mississippi, releasing about 10,253 barrels (430,626 gallons) of propane. The resulting gas cloud expanded over nearby homes and ignited, creating a large fireball that was heard and seen from miles away. As a result of the ensuing fire, two people were killed and seven people sustained minor injuries. Four houses were destroyed, and several others were damaged. About 71.4 acres of grassland and woodland were burned. Dixie Pipeline Company reported that property damage resulting from the accident, including the loss of product, was about $3.4 million.

Safety issues identified in this accident investigation include the failure mechanisms and safety of low-frequency electric resistance welded pipe, the adequacy of Dixie Pipeline Company's public education program, the adequacy of federal pipeline safety regulations and PHMSA's oversight of pipeline operators' public education and emergency responder outreach programs, and emergency communications in Clarke County, Mississippi.

The NTSB determined that the probable cause of this accident was the failure of a weld that caused the pipe to fracture along the longitudinal seam weld, a portion of the upstream girth weld, and portions of the adjacent pipe joints. The NTSB made recommendations to PHMSA, the Dixie Pipeline Company, the American Petroleum Institute, and the Clarke County Board of Supervisors. The NTSB adopted the report on October 14, 2009.

Ongoing Pipeline Investigations

House Explosion Caused by Natural Gas Release From Main/Service Line in Rancho Cordova, California

On December 24, 2008, an explosion and fire caused by a natural gas leak destroyed a residence in Rancho Cordova, California. One person was killed, and five people, including one utility employee and one firefighter, were hospitalized. Two homes adjacent to the destroyed home were severely damaged, and several homes sustained minor damage.

Rupture of a Natural Gas Pipeline near Palm City, Florida

On May 4, 2009, about 5:09 a.m., an 18-inch gas transmission pipeline ruptured near Palm City, Florida. The rupture occurred in the Florida Turnpike right-of-way, between I-95 and the Florida Turnpike. The turnpike and I-95 were closed for approximately 3 hours due to the accident. The force of the natural gas released during the rupture created a crater approximately 116.5 feet long by 17 feet wide by approximately 2.8 feet deep. About 104 feet of the 18-inch pipe were ejected from the ruptured pipeline and landed on the ground, next to the crater. It was not until almost 2 hours later that the SCADA operator of the pipeline company realized that one of its underground lines had ruptured. As a result, approximately 33 of the total 36 million cubic feet of gas were released during this time period. Fortunately, there was no ignition of the natural gas. No fatalities were reported; however, two people were injured when their car reportedly hit debris, ran off the road, and flipped. A deputy sheriff was also hospitalized after walking through a gas cloud. A nearby school and residential community were evacuated.

Pipeline Support of Ongoing Investigations in Other Modes

Aviation Accident and Pipeline Fire in Clarence Center, New York

On February 12, 2009, about 10:17 p.m., a Colgan Air Inc., Bombardier Dash 8-Q400 crashed during an instrument approach to runway 23 at the Buffalo-Niagara International Airport, Buffalo, New York. The crash site was approximately 5 nautical miles northeast of the airport in Clarence Center, New York, and mostly confined to one residential house. The 4 flight crewmembers and 45 passengers were killed, and the aircraft was destroyed by impact forces and postcrash fire. There was one ground fatality. Pipeline investigators were asked to determine why several hours passed before the ruptured natural gas pipeline at the crash site was shut off. The investigation found that the utility company had acted in a safe and professional manner in shutting off the service line.

Hazardous Materials Safety

Chemicals affect every sector of the economy and are essential to the nation's standard of living because they are vital to the production of products, such as synthetic fabrics, medicines, packaging materials, and paints. The American Chemistry Council reported in January 2010 that more than 5.5 million jobs in the United States are generated by the chemical industry.

HazMat Fact

⇒ *Hazardous materials are most often released as the result of a transportation accident or because of a chemical accident at a plant.*

In December 2009, the Bureau of Transportation Statistics published its final *2007 Commodity Flow Survey,* which shows shipment characteristics by industry. According to this survey, the chemical manufacturing industry was responsible for more than 594 million tons of shipments; the petroleum and coal products manufacturing industry and the plastics and rubber products industry were responsible for more than 1.4 billion and 66 million tons of shipments, respectively.

The impact of hazardous materials transportation is reflected in the data from hazardous materials incident reports submitted to PHMSA. In 2009, the transportation modes reported 14,089 incidents involving the release of hazardous materials. The incidents resulted in 3 fatalities, 139 injuries, and $40.6 million in damage. The number of reported incidents, fatalities, and injuries fluctuates from year to year. During the 10 years between 2000 and 2009, the transportation modes annually averaged 16,699 hazardous material incidents involving a total of 13 deaths and 273 injuries.

Completed Hazardous Materials Investigations

Special Investigation Report: Fire During Unloading in Dallas, Texas, July 25, 2007; Fire During Unloading in The Woodlands, Texas August 7, 2007; and Overturn and Fire in East New Orleans, Louisiana, October 20, 2007

The NTSB investigated three accidents that involved highway vehicles transporting bulk quantities of acetylene gas that occurred in 2007 and reviewed reports of a 2008 overturn accident of another vehicle. The vehicles, called mobile acetylene trailers, carried up to 225 cylinders that were connected by a manifold system and filled with acetylene. Two of the accidents occurred as the vehicles overturned on public highways, and two of the accidents occurred while the vehicles were being prepared for unloading. In the two overturn accidents, cylinders were ejected from the trailers and damaged, releasing acetylene, which ignited. In one unloading accident, the fire on the initial trailer spread to cylinders on an adjacent trailer; in the other, the fire also spread to nearby buildings and vehicles. The failures of the cylinders on these trailers and the resultant damage raised concerns about the accident protection provided by these vehicles, the adequacy of the minimum safety standards and procedures applicable to unloading these vehicles, and the adequacy of fire suppression systems at loading and unloading facilities.

As a result of this special investigation, the NTSB issued safety recommendations to PHMSA and the Compressed Gas Association. The NTSB adopted the report on January 13, 2009.

Collision Between Cargo Tank Truck and Private Auto with Release and Ignition of Flammable Fuel in Upper Pittsgrove, New Jersey

On July 1, 2009, about 1:46 a.m., a 2002 Kenworth tractor pulling a 1989 Fruehauf MC-306 cargo tank semitrailer (the cargo tank truck) was traveling eastbound on U.S. Route 40 in Upper Pittsgrove Township, New Jersey, when it was struck by a 2002 Mitsubishi Diamante (the automobile) traveling northbound on Commissioners Pike. The automobile driver failed to obey a stop sign equipped with flashing red lights and collided with the external loading lines on the passenger side of the cargo tank truck. Loading line 4 was ruptured and about 13 gallons of gasoline were released as the automobile became wedged beneath the cargo tank truck and was dragged about 500 feet. A postcrash fire consumed the automobile, killing the driver; the cargo tank truck also was damaged. The Daretown Volunteer Fire Department arrived within 15 minutes and extinguished the fire. Property damage was about $27,000.

The NTSB determined that the probable cause of this accident was the failure of the automobile driver to obey a stop sign equipped with flashing red lights. Contributing to the severity of the accident was a fire that resulted from a cargo tank loading line that was ruptured during the collision. The NTSB adopted the report on November 12, 2009.

Ongoing Hazardous Materials Investigations

Cloud of Anhydrous Ammonia in Swansea, South Carolina

On July 15, 2009, about 8:00 a.m., a cargo transfer hose ruptured shortly after transfer of anhydrous ammonia began from a cargo tank truck to a storage tank at the Tanner Industries plant in Swansea, South Carolina. A white cloud of anhydrous ammonia, a toxic-by-inhalation gas, traveled from the parking lot of the facility across U.S. Highway 321 to a largely wooded area, where it eventually dissipated. A motorist driving north on the highway at the time was killed. Seven people went to the Lexington Medical Center Emergency Department complaining of respiratory issues and dizziness. The ammonia caused temporary discoloration of the vegetation in the area. Residents in the area were evacuated from their homes, and U.S. 321 was closed until about 2:00 p.m. on the day of the accident.

Hazardous Materials Support of Completed Investigations in Other Modes

In 2009, the NTSB's Hazardous Materials investigative staff helped complete the following marine accident investigation.

Allision of Container Ship M/V **Cosco Busan** *with San Francisco-Oakland Bay Bridge in San Francisco, California*

On November 7, 2007, the Hong Kong-registered 901-foot-long containership M/V *Cosco Busan* allided with the fendering system at the base of the Delta tower of the San Francisco–Oakland Bay Bridge. Contact with the bridge tower created a 212-foot-long by 10-foot-high by 8-foot-deep gash in the forward port side of the ship and breached the Nos. 3 and 4 port fuel tanks and the No. 2 port ballast tank. As a result of the breached fuel tanks, about 53,500 gallons of heavy fuel oil were released into San Francisco Bay. No injuries or fatalities resulted from the accident, but the fuel spill contaminated about 26 miles of shoreline, killed more than 2,500 birds of about 50 species, temporarily closed a fishery on the bay, and delayed the start of the crab-fishing season. Total monetary damages were estimated to be $2.1 million for the ship, $1.5 million for the bridge, and more than $70 million for environmental cleanup.

Hazardous materials investigators evaluated the effectiveness of actions to quantify the volume of oil spilled and the deployment of appropriate and necessary oil recovery assets. Additionally, hazardous materials investigators reviewed the oil spill notification procedures and contingency planning. Hazardous materials safety issues identified during this accident investigation include procedures for improving the assessment of oil spills in California waters. As a result of its investigation of this accident, the NTSB made safety recommendations to the USCG, the American Pilots' Association, and Fleet Management Ltd. The NTSB adopted the report on February 19, 2009.

Hazardous Materials Support of Ongoing Investigations in Other Modes

Crash and Fire Involving Cargo Tank Truck Carrying Liquefied Petroleum Gas in Indianapolis, Indiana

On October 22, 2009, the operator of a truck tractor combination with an 11,600-gallon specification MC331 cargo tank semitrailer loaded with liquefied petroleum gas was traveling south on Interstate 69 and struck the right guardrail under the Interstate 465 northbound overpass in Indianapolis, Indiana. The cargo tank semitrailer went over the guardrail and slid into the bridge footing and column supporting the southbound overpass. The impact of the cargo tank semitrailer caused the outside southbound Interstate 465 overpass column to completely separate and the front head of the cargo tank semitrailer was breached. Following the initial impact, the cargo tank semitrailer passed between the columns supporting the northbound and southbound overpasses. The cargo tank breach released the liquid petroleum gas, which erupted into fire. The ensuing fire involved eight other vehicles on the connection ramp and overpasses. The truck tractor driver received serious injuries, and the driver of a passenger car on Interstate 69 received serious injuries. The occupants of three vehicles on Interstate 465 received minor injuries. Hazardous materials investigators are evaluating the design criteria and crashworthiness of the highway cargo tanks used for the transportation of bulk compressed gases.

Freight Train Derailment and Fire in Cherry Valley, Illinois

On June 19, 2009, a CN freight train derailed 19 tank cars containing denatured ethanol in Cherry Valley, Illinois. The 2-locomotive, 114-car train originated in Tara, Iowa, and was en route to Chicago. Thirteen of the derailed tank cars were breached and caught fire, releasing about 323,963 gallons of product. The accident resulted in one fatality, and nine persons were treated for injuries, including two firefighters who sustained minor injuries. About 600 residences within a 1/2-mile radius of the accident scene were evacuated. A subsurface gas pipeline at the site of the derailment was damaged by wreckage impact but did not leak. An estimated 60,000-gallons of the released denatured ethanol entered a tributary of the Rock and Kishwaukee Rivers and resulted in a significant fish kill. Property damage was estimated to be in excess of $4.4 million. Hazardous materials investigators are evaluating the adequacy of specification DOT-111 general service tank cars used for the transportation of certain hazardous materials such as denatured ethanol. Hazardous materials investigators are also evaluating the adequacy of protection provided for buried pipelines at railroad grade crossings.

Derailment of CSX Train with Hazardous Materials/Fire near Shepherdsville, Kentucky

On January 16, 2007, a CSX train derailed 25 tank cars, 12 of which contained hazardous materials, near Shepherdsville, Kentucky. Of the 12 tank cars, 1 had only a residue of chlorine, but the other 11 cars were fully loaded. Of the fully loaded cars, four contained butadiene (a flammable gas) and one contained methyl ethyl ketone (a flammable liquid). As a result of the derailment, three of the derailed tank cars were breached and released significant

quantities of butadiene, methyl ethyl ketone, and hydraulic fluid, a nonregulated material. Emergency responders evacuated everyone within a 1-mile radius; as a precautionary measure, a school evacuated approximately 400 students. Approximately 25 residents were treated and released at local hospitals; no railroad employees were injured. NTSB hazardous materials investigators are evaluating the effect that the release and ignition of hazardous materials had on the public, as well as the overall response effort.

Public Hearings

Collision of a Southern California Regional Rail Authority (Metrolink) Passenger Train with a Union Pacific Railroad Freight Train near Chatsworth, California

March 3-4, 2009

The NTSB held a public hearing on the 2008 collision of a Southern California Regional Rail Authority (Metrolink) commuter train and a Union Pacific (UP) freight train in Chatsworth, California. The 2-day hearing began on March 3, 2009, at the NTSB's Board Room and Conference Center.

The topics discussed at the 2-day hearing included: train signals, operating rules (including calling signals and the use of cell phones), and positive train control.

Witnesses to the hearing were representatives from Metrolink, UP, the Federal Railroad Administration, California Public Utilities Commission, Connex Railroad (the company that employed the engineer and that contracted with Metrolink), United Transportation Union, Brotherhood of Locomotive Engineers and Trainmen, and Wabtec Corporation.

Key Challenges

- The Office of Railroad, Pipeline and Hazardous Materials has limited resources to conduct investigations and, at the same time, needs to address a significant accident investigation workload. Consequently, RPH is challenged to accomplish its mission within the constraints of current staffing levels.
- Maintaining staff's level of expertise and currency with industry's improvements and technological advances in an environment of scarce training resources is also challenging. The office's challenge is to develop its current workforce to meet investigative needs and to implement strategies to attract talented individuals to fill key positions.
- A key challenge is to stay abreast of issues through technical committee work and to continue to engage in important outreach activities, all while staff resources continue to be strained.

Significant Outcomes and Achievements

- Two urgent recommendation letters were issued to WMATA that were derived from the NTSB's ongoing investigation of the collision between two WMATA Metrorail trains on the Red Line near the Fort Totten station in Washington, D.C.
- A Transit Safety Bill was introduced in the House to give the federal government jurisdiction over transit safety. The NTSB has long believed that the Federal Transit Administration should strengthen its role in rail transit safety oversight. Unlike heavy rail, airlines, and highway transportation, safety on the nation's subway and light-rail systems is overseen by state agencies, not the federal government.
- PHMSA published the final rule for Control Room Management/Human Factors on December 3, 2009. This rule addressed Safety Recommendations P-05-01 through -03 issued to PHMSA as a part of the NTSB's 2005 Safety Study *Supervisory Control and Data Acquisition in Liquid Pipelines*. These recommendations addressed requiring operators of hazardous liquid pipelines to follow the American Petroleum Institute Recommended Practice 1165 for the use of graphics on the SCADA screen, requiring pipeline operators to have a policy for the review/audit of alarms, and requiring controller training to include simulator or non-computerized simulations for controller recognition of abnormal operating conditions, such as leak events. The final rule incorporates American Petroleum Institute Recommended Practice 1165 by reference and thereby addresses these three safety recommendations.
- PHMSA published its final rule for Integrity Management of Gas Distribution Pipelines on December 4, 2009. The rule requires operators to develop and implement integrity management programs under state and federal oversight. With the implementation of these rules, integrity management program requirements now exist for gas transmission, hazardous liquid, and distribution pipeline systems. The NTSB has supported integrity management in principle and as part of its investigations will continue to evaluate the impact of integrity management programs on pipeline safety. Although the Integrity Management final rule should improve safety, it did not specifically address the NTSB's concern with directional drilling, compression couplings, and installation of excess flow valves beyond the mandates of the PIPES Act of 2006.

Research and Engineering

As accident investigations become more complex, NTSB investigators from all transportation modes increasingly seek technical and analytical support from the Office of Research and Engineering (RE) in a wide range of disciplines, including statistical analyses of accident data, recorder data, radar data, vehicle performance, accident reconstruction, visibility calculations, vehicle motion simulations, animations, medical and toxicology analyses, materials failure examinations, structural failure analyses, and fire and explosion analyses.

RE — 2009 At A Glance	
Number of Employees: HQ: Regional:	 40 0
Recommendations	
Recommendations Issued	11
Major Reports and Products Adopted by the Board	
Major Reports:	2
Accident Launches	
Major Accident Launches: Field Investigation Accident Launches:	16 3
Other Information	
Vehicle Recorder Readouts: Materials Laboratory Exam Reports: Vehicle Performance Reports:	326 117 42

In 2009, RE continued to pursue a number of efforts to expand the NTSB's technological capabilities by developing close working relationships with outside transportation agencies, both in the United States and abroad. For example, RE staff members continue to collaborate with the FAA to develop and enhance methods to effectively collect meaningful information from the vast amount of data being collected during aviation accident investigations. Staff members in RE's Safety Research Division are also working closely with international aviation safety organizations to facilitate the standardization of aviation safety data to improve its availability and use.

In railroad safety, RE staff worked with the FRA and with engineers from the University of Illinois at Chicago (UIC), the Volpe Center, and ENSCO, Inc., on the UIC's railroad simulation program to ensure that the final product will be an effective tool for railroad accident investigations. For the Chatsworth, California, rail investigation, our new internally developed software program, RailPlus, was used to determine the position of the locomotive each time a text message was sent or received; this information was then used to produce an animation of the event. Developmental work continues on the RailPlus software module as an enhancement to the CIDER event recorder readout software.

Research and Engineering

In 2009, the office developed 11 recommendations and contributed to the development of others contained in modal reports including:

- ⇒ *3 recommendations to the USCG*
- ⇒ *2 recommendations to the FMCSA concerning obstructive sleep apnea*
- ⇒ *2 recommendations to the Department of Homeland Security's Federal Interagency Committee on Emergency Medical Services*
- ⇒ *4 to the Department of Health and Human Services' Centers for Medicare & Medicaid Services concerning HEMS*

In marine safety, RE recorder staff continued to collaborate with the United

Kingdom's Marine Accident Investigation Branch to develop software tools for voyage data recorder (VDR) analysis. RE staff members also continued to expand use of its new kinematics parameter extraction capability, which previously had been used in aviation investigations only, into marine investigations. The software, which quantifies the difference between actual movements of a ship as recorded by the VDR and expected movements as indicated by simulations, continues to be used in marine investigations.

As for highway safety, the Safety Research and Statistical Analysis Division continued to work closely with the NHTSA Office of Emergency Medical Services and the National Institutes of Occupational Safety and Health on ambulance transportation safety issues.

RE underwent a significant organizational change in 2009 with the appointment of a new director, and the reassignment of the former director to senior technical advisor for investigations and research. In addition, a new senior transportation analyst with significant experience in highway safety research joined the Safety Research and Statistical Analysis Division. Finally, the office benefited from the contributions of student interns in three of its divisions, as well as the efforts of an intern from the FAA in the Vehicle Recorder Division.

Significant Work Accomplishments

Safety Research and Statistical Analysis

Safety Research and Statistical Analysis Fact

The Safety Research and Statistical Analysis Division responded to 442 data analysis requests and 54 requests for statistical analysis.

Safety Research and Statistical Analysis staff includes transportation research and aviation data analysts who provide statistical support to other NTSB offices, respond to requests for statistical data from the public, including Congress, and develop safety studies and other safety research products to further the NTSB safety mission. In 2009, staff supported at least 14 accident investigations, launched on another 5, and engaged in a broad variety of research and support activities for Board Members and other offices. These activities included continued research for three safety studies, two annual aviation accident data reports, multiple research assessments and data reports to support investigations, the development and rollout of a significant revision to the Aviation Data Management System, and numerous presentations and training for internal and external organizations. Key components of these activities include the following:

General Aviation Airbag Effectiveness. Data collection for this safety study is now complete, and the study is scheduled for completion in the near future. Airbags are now becoming standard equipment on newly manufactured GA aircraft. In September 2009, approximately 6,700 general aviation (GA) aircraft were equipped with airbags. The effectiveness of those airbags has been evaluated in simulations and in sled tests; however, their performance in surviable crashes is unknown. The purpose of the study is to examine accidents involving airbag-equipped GA aircraft to better understand the effects of airbag deployment in actual accidents. As with automobile airbags, examination of this new technology will enable the NTSB to evaluate any unintended consequences that may result

from the introduction of airbags with the goal of identifying those situations in which airbags are particularly effective at reducing injury. Staff has, to date, launched on 14 accidents to collect data for the study.

Glass Cockpit Displays in General Aviation Aircraft. This safety study is scheduled for completion early in 2010. The introduction of advanced cockpit display technology into small aircraft raises a new set of potential concerns to the NTSB, such as equipment design and operation, pilot performance and training, and new accident investigation techniques. The change in aircraft equipment is occurring rapidly. In fewer than 5 years, the cockpits of small piston airplanes have transitioned from traditional analog gauges to digital displays. Data from the General Aviation Manufacturers Association indicate that more than 90 percent of new piston airplanes are now equipped with digital displays or "glass cockpits." Preliminary findings from ongoing investigations involving piston airplanes equipped with glass cockpits have raised questions about equipment design and pilots' ability to monitor cockpit displays—including their ability to identify and respond to equipment malfunctions. This ongoing study is an exploratory effort with two goals: (1) to characterize the fleet of glass cockpit piston aircraft and how they are used and (2) to produce sound safety-related comparisons of GA piston airplanes equipped with glass cockpits and those with conventional displays that can be used to define this emerging issue and direct future research.

An NTSB biomechanics specialist documents seat damage for the GA airbag safety study. The accident, which occurred on September 30, 2008 in Fullerton, California, and involved an airbag-equipped Cessna 172S (LAX08FA301), is one of the cases being considered in the airbag study.

Example of a light aircraft glass cockpit.

NTSB Human Fatigue Investigation Methodology in Aviation Accidents. The NTSB has long recognized the safety risks associated with human fatigue in transportation safety and has issued over 100 fatigue-related safety recommendations in all modes of transportation. As a means to improve and standardize the methods for investigating fatigue in transportation accidents, staff members have developed a methodology for determining if human fatigue has contributed to a transportation accident. The human fatigue investigation methodology (HFIM) was designed to provide guidance to investigators in the collection and evaluation of evidence pertaining to fatigue.

This safety study is designed to systematically evaluate the HFIM by (1) asking air safety investigators (ASI) to apply the HFIM to all of their Part 135 air taxi field investigations for a defined period of time, (2) gathering and analyzing data obtained through those investigations, and (3) eliciting ASI feedback about their experiences using the HFIM. It is anticipated that the study will yield benefits in three ways. First, it will provide data about sleep and fatigue issues within Part 135, a segment that has received relatively little attention in terms of fatigue research; second, it will provide a training opportunity for field investigators to learn more about the issue of human fatigue; and third, it will allow for the refinement of the HFIM so that it can be a more useful tool for investigators.

2005 Report on General Aviation Accident Data. During 2009, the NTSB adopted and published the report on general aviation accident data for calendar year 2005. A special topic on flight instruction was included in this report, The NTSB adopted this report on May 25, 2009.

2005 Report on Air Carrier Accident Data. During 2009, staff compiled data for the report on air carrier aviation accident data for calendar year 2006. The report covers aircraft operated by U.S. air carriers under 14 CFR Parts 121 and 135. The report includes data for the years 1996–2005 as historical context for the 2006 statistics, as well as a listing of all air carrier accidents for 2005. The NTSB adopted this report on March 19, 2009.

Helicopter Emergency Medical Service (HEMS). Division staff members were heavily involved in planning and conducting a 4-day hearing on HEMS transport safety and the followup Board meeting considering safety recommendations. These recommendations included four to the Centers for Medicare and Medicaid Services relating to HEMS reimbursement practices and safety and two to the Federal Interagency Committee on Emergency Medical Services. In addition, the division participated in the development of 10 new safety recommendations to the FAA and 5 to public aircraft operators, which were finalized by the Office of Aviation Safety.

Accident Data and Public Records. Data specialists continue to respond to requests for aviation accident information and completed 442 data analysis requests and 54 requests for statistical analysis in 2009. Some requests concerned the accident frequency of a particular aircraft model or air carrier, while others addressed particular types of accident events. The addition of historical accident data from 1962 to 1983 to the NTSB website, combined with complete download and text search capabilities, now allows many researchers to complete their own analyses, especially for simple, straightforward analyses. More complex requests

for aviation accident data, however, continue to be handled by the RE data specialists, who also publish monthly and annual U.S. civil aviation statistical information on the NTSB website.

Materials Laboratory

The Materials Laboratory comprises metallurgists, materials scientists, mechanical engineers, and fire and explosion specialists. Staff members examine, analyze, and test parts and wreckage from over 100 accidents in a typical year in support of investigations from all transportation modes. In addition to fracture surface evaluation (fractography) and other traditional failure analysis testing, the Materials Laboratory generates finite element models of structures to evaluate stress and deformation patterns.

Materials Laboratory Fact

The Materials Laboratory completed 117 reports and launched to 9 accident sites, including 1 international accident.

Of particular note in 2009 was the metallurgical evaluation of a Boeing 737-300 rapid depressurization accident caused by localized rupture of the fuselage skin. Staff led a metallurgical failure analysis that determined that the accident occurred due to earlier-than-anticipated fatigue of the fuselage. This investigation resulted in the issuing of an emergency airworthiness directive (AD) for an updated fatigue crack inspection schedule.

In 2009, the Materials Laboratory completed 117 reports and launched to 9 accident sites, including 1 international accident. About 36 percent of components from major accident investigations had preexisting material flaws, such as fatigue cracks, excessive wear, or corrosion. Summaries of some of the more significant cases are outlined below:

A railcar truck side frame sample is being marked for laboratory analysis of rail burn scars.

- For the investigation of an anhydrous ammonia cargo hose rupture in Swansea, South Carolina, staff found that the use of an improper hose caused chemical degradation of the hose's reinforcing layers.
- In support of a pipeline investigation, staff determined the fracture origin of an 18-inch diameter pipe that sustained a 106-foot rupture, releasing natural gas in a narrow passage between I-95 and the Florida Turnpike in Palm City, Florida.
- Staff supported the Office of Highway Safety in the investigation of the Chesapeake Bay Bridge parapet failure that resulted in a tractor trailer driving off of the bridge into the Chesapeake Bay.

- For the investigation of an uncontained failure of the fan blade on a Rolls-Royce engine from a Boeing 777 at Atlanta-Hartsfield International Airport, staff found that a dry-film lubricant used to reduce friction between moving parts at the base of the blade deteriorated during service and led to high friction stresses and eventual fracture of the blade. Lubrication schedules on the engine were reduced and qualification testing of dry-film lubricant is ongoing.
- For the investigation of a Sikorsky S-76 accident in Morgan City, Louisiana, staff confirmed and documented the structure's damage due to a birdstrike. Several recommendations are being developed as a result of this accident.
- Staff supported an international investigation of an accident involving a Sikorsky S-92 that crashed off the coast of St John's, Newfoundland. Collaboration between the Transportation Safety Board of Canada and the NTSB resulted in an AD that drove part redesign and fleet modification.
- Staff conducted metallurgical evaluations of the fatigue cracking in the nose gear engine mounts from a Piper PA-46-350P accident in Sanford, Florida,. Based on this work, staff found that the failed component was a newly designed part for which inspection is not required. An AD is underway to address this situation.
- Staff supported the Office of Marine Safety in the investigation of the sinking of the *Lady Mary* fishing vessel off the coast of Cape May, New Jersey. This ongoing investigation is an excellent example of the interdepartmental collaboration between the NTSB, the USCG, and the U.S. Navy.

Evaluation of damage to the rudder from the fishing vessel Lady Mary

• Fire and explosion investigators participated in the investigation of two significant aviation accidents that occurred in 2008: the CRJ-200 oxygen-assisted electrical fire in Tallahassee, Florida, and the Boeing 767 in-flight aircraft fire that occurred over Halifax, Nova Scotia, which was later turned over to the Federal Bureau of Investigation (FBI). Fire and explosion specialists also supported the investigations of a general aviation in-flight fire in Fort Lauderdale, Florida; an engine fire on the *Fire Island Belle* ferry in Fair Harbor, New York; and a gasoline tanker truck wet line fire in Pittsgrove, New Jersey. The investigative work from the Pittsgrove tanker truck fire was used to support existing NTSB recommendations and legislation on safe wet line practices on tanker trucks.

Vehicle Performance Laboratory

Vehicle Performance Facts

In 2009, the Vehicle Performance Division:

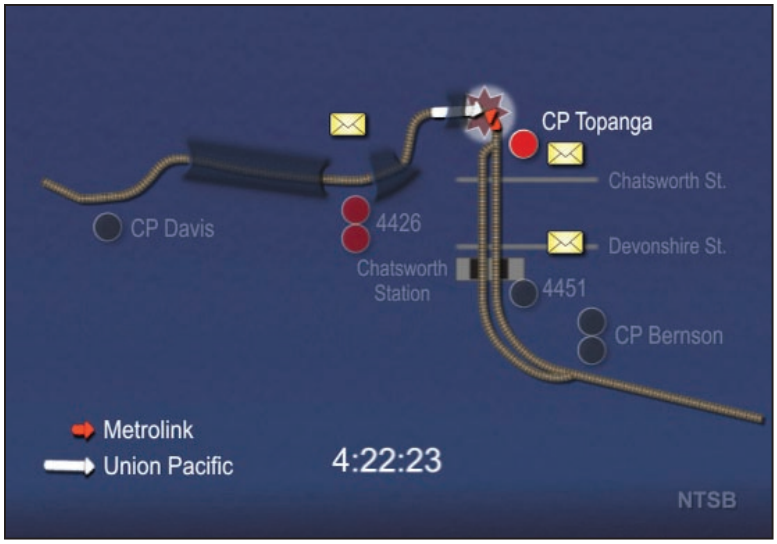
⇒ *produced 42 vehicle performance factual reports*

⇒ *launched to 5 accident sites*

⇒ *produced 9 animations*

The Vehicle Performance Laboratory uses computational and engineering graphics technology to provide an accurate time-motion history of the sequence of events leading to an accident and to determine vehicle and occupant motion and the underlying causes of that motion. The division also develops computer simulations of vehicle and occupant motion, develops video animations of accident scenarios, and participates in and directs research into fluid and thermal sciences and other special projects. In 2009, staff produced 42 factual reports, as well as several white papers and animations, launched to 5 accident sites, supported 59 accident investigations, and participated in the development of 6 safety recommendations included in modal reports. The Vehicle Performance Laboratory also identified the need for new technology to maintain and enhance capabilities in vehicle simulation, vehicle modeling, mathematical analysis, animations, and geographic information systems. Examples of specific investigative support in 2009 include the following:

- Staff launched to the accident site of the Colgan Airlines accident, outside of Buffalo, New York, and documented on-scene data. Staff then examined FDR data and implemented an engineering simulation of the Bombardier DHC-8-Q400 airplane to examine icing effects and control inputs by the flight crew.
- For the Continental Airlines flight 1404 runway excursion accident in Denver, Colorado, staff examined FDR data and participated in simulations of the Boeing 737-800 aircraft with varying crosswind inputs.
- For the school bus rollover in Milton, Florida, in which the bus left the interstate and rolled several times on the median, and for which several school age children on the bus were wearing safety belts, staff began performing simulations of the vehicle motion for input into occupant kinematic simulation software.
- For the BAE 125-800A Hawker jet accident in Owatonna, Minnesota, staff examined radar data and performed additional performance calculations based on enhanced ground proximity warning system data available for the aircraft's electronics.
- For the Milwaukee, Wisconsin, Cessna 550 medical flight accident, staff developed and implemented an engineering simulation to examine the possible equipment failures and control inputs that matched the recorded radar data and CVR data for the accident.
- Staff prepared an aircraft performance study and a ground track animation of the US Airways ditching in the Hudson River after a collision with a flock of geese and loss of both engines. Staff examined the glide capability of the airplane and examined alternate airport return or diversion scenarios.
- Vehicle Performance staff examined FAA radar data, ATC voice data, and a video photographed by a witness to construct an animation of the collision between a helicopter and a Piper aircraft over the Hudson River in New York City.



Still from animation used to explain the Collision of Metrolink Train 111 with Union Pacific Freight Train near Chatsworth, California.

- For the accident involving a Maryland State Police helicopter in Beltsville, Maryland, staff examined automatic dependent surveillance-broadcast data to determine the flightpath and descent rates for the accident helicopter and created a ground track animation of the accident flight.
- For the Dolan Springs, Arizona, highway accident in which a small motorcoach overturned after leaving the highway, staff used advanced simulation capabilities recently obtained within the division and worked with an electronic brake manufacturer to examine the potential benefits if the motorcoach had been equipped with an electronic stability control system.

- Staff supported three foreign investigations:
  - For the Kalitta Airlines Boeing 747 takeoff accident in Bogotá, Colombia, staff performed simulations of the progressive engine-out failure scenario during the accident sequence and examined climb capability in the failed engines scenarios.
  - For a Lear 45 accident in Mexico City, Mexico, which involved several high-ranking Mexican government officials, staff processed radar data and prepared a performance report.
  - For the Boeing 737-823 that overran and exited the runway in Kingston, Jamaica, which led to severe structural damage and loss of the airplane, staff examined the approach and landing of the accident airplane based on FDR data.
- Staff produced nine animations to aid in explaining highway, rail, and aviation accidents at public hearings, Board meetings, and Board Member congressional testimony, including animations that demonstrated the airplane motion and control inputs for the Colgan Airlines accident near Buffalo, New York, and an animation detailing the electronic communications used by the operators of the trains involved in the Chatsworth, California, train collision.
- Staff provided technical support, including detailed vehicle and occupant simulations, to 24 regional general aviation investigations and 5 regional highway and railroad vehicle accident investigations.

Vehicle Recorder Laboratory

Vehicle Recorders

Breakdown of 326 Vehicle Recorder readouts:

⇒ *52 cockpit voice recorders*

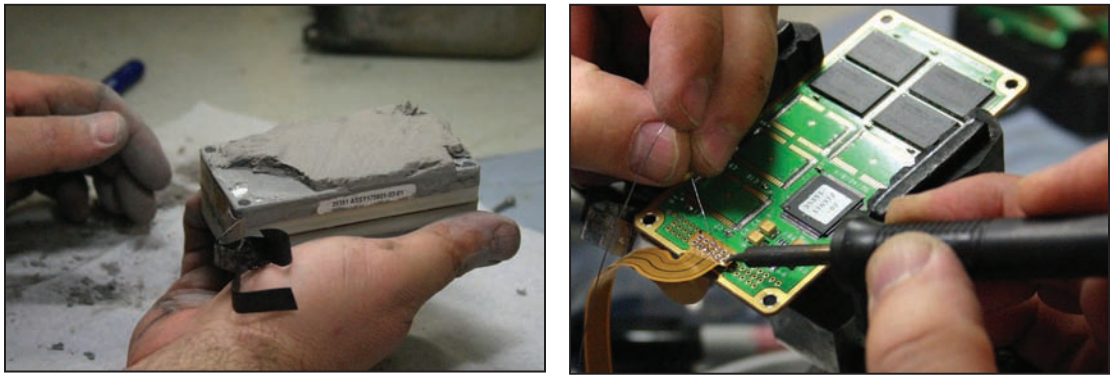
⇒ *61 flight data recorders*

⇒ *18 image recording devices*

⇒ *19 rail event recorders*

⇒ *176 other types of recording devices*

The Vehicle Recorder Laboratory received 326 devices and completed 204 readouts, transcripts, and studies in support of aviation, rail, marine, and highway investigations in 2009. The high volume of laboratory workload continued due to (1) the expanded use of advanced technology such as global positioning system units and avionics displays, which can record data on aircraft not otherwise equipped with flight recorders; (2) a proliferation of video recordings and still images from sources such as installed cameras, handheld cameras, and security cameras; and (3) an unprecedented level of support requested for international aviation investigations (69 foreign recorders received). To keep pace with these increasing demands, the Vehicle Recorder Laboratory has undertaken, in addition to its regular investigative responsibilities, significant efforts to incorporate new technology and improved capabilities for the readout of vehicle recorders, including the following:



Vehicle Recorder Division staff extract the memory from a damaged solid-state combination CVR/FDR and prepare the memory to be downloaded using laboratory equipment.

- Continued development of the next-generation FDR analysis software, which ensures that the NTSB is no longer dependent on a foreign sole-source legacy system for the bulk of FDR analysis.
- Partnered with the FAA to develop an animation module to more easily import data into various commercial off-the-shelf animation programs.
- Continued development of hardware and software tools for recovering and analyzing data from on-board VDRs, the population of which is expected to increase due to recent international marine regulations requiring their use on large oceangoing vessels.
- Developed specialized computer tools for analyzing images from on-board video cameras and recorders, witness videos, fixed traffic/security camera video devices, and still photographs, which cannot be efficiently and reliably analyzed using conventional tools, such as paper maps, dividers, and protractors.

Examples of Vehicle Recorder Laboratory casework in 2009 include the following major investigations:

- For the WMATA Fort Totten accident that occurred in June 2009, vehicle recorder staff provided extensive data, control center, and phone record analysis to document the circumstances surrounding the accident.
- For the investigation of the January 2009 US Airways A320 accident in the Hudson River, vehicle recorder staff led the efforts to read out and analyze the FDR and CVR recorded information.
- For the investigation of the February 2009 Colgan accident outside Buffalo, New York, vehicle recorder staff led the efforts to read out and analyze the FDR and CVR information.
- For the January 2009 PHI S-76 helicopter accident in Louisiana, vehicle recorder staff led the efforts to read out and analyze the FDR, CVR, sound spectrum, and engine control units.
- For the August 2009 Hudson River midair collision, vehicle recorder staff read out and analyzed recorded video, as well as GPS devices.

Medical Factors

Staff provided medical consultation to accident investigators in all modes on more than 75 accidents in 2009. Medical issues addressed in 2009 accident investigations included, among others, flight attendant incapacitation, physiological stresses in aerobatic flight, visual field deficits, substance dependence, obstructive sleep apnea, and the use of psychoactive prescription and over-the-counter medications. Summaries of the more important efforts are listed below:

- Staff coordinated with aviation investigators on the investigation of incidents of flight attendant incapacitation in light of the lack of medical standards for flight attendants, particularly given the increased frequency of single flight attendant operations.
- Staff coordinated with investigators from all modes to draft parallel safety recommendations for aviation, transit, marine, and highway modes regarding programs to screen, diagnose, treat, and certify transportation operators with obstructive sleep apnea.
- At NHTSA's request, staff participated with a NHTSA expert panel on developing protocols for impairment for driving under the influence of drugs.
- Staff coordinated with medical personnel at modal agencies regarding activities responsive to NTSB recommendations: in 2009, these included coordination regarding new initiatives on hypoxia guidance for pilots, medical conditions and medications for rail operators, expanded drug testing protocols for mariners following marine casualties, and management of obstructive sleep apnea in all modes.
- Staff regularly coordinates with investigators on the scene of major accident investigations and, in 2009, provided support for highway investigators on

accident scenes in Indiana, Michigan, Oklahoma, and Arizona; for marine investigators on scenes in California and Florida; and for rail investigators on scene in San Francisco.

Key Challenges

- Managing resources effectively when requests for data and statistical support and analysis of nontraditional recording devices continue to increase while staff resources and equipment remain unchanged.
- Maintaining state-of-the-art technical capability in a rapidly changing, increasingly complex technological environment with limited staffing, training, and equipment.

Significant Outcomes and Achievements

- The Safety Research and Statistical Analysis Division developed six safety recommendations concerning HEMS safety, which included four to the Centers for Medicare and Medicaid Services relating to HEMS reimbursement practices and safety and two to the Federal Interagency Committee on Emergency Medical Services. In addition, the division participated in the development of 10 new safety recommendations to the FAA and 5 to public aircraft operators.
- Medical staff developed three safety recommendations to the USCG and two to the FMCSA concerning obstructive sleep apnea.
- The Materials Laboratory provided substantial support investigating the physical damage of the Carmichael, Mississippi, liquid propane gas pipeline rupture. The accident report was adopted on October 14, 2009.
- The Vehicle Recorder Division continued to develop its next-generation flight data analysis software and collaborated with the FAA to fund development of an animation module.
- Vehicle performance staff authored four technical papers that were accepted and published at technical conferences in 2009, and one was featured in the print version of a technical journal.
- The FMCSA hired a full-time Medical Officer, largely a result of NTSB recommendations regarding medical oversight of commercial drivers.

Transportation Disaster Assistance

In 1996, Congress passed the Aviation Disaster Family Assistance Act, which gave the NTSB the responsibility of assisting the victims of aviation disasters and their families. The agency's primary responsibility involves coordination between federal agencies, commercial airlines, State and local authorities, and the families of victims. In 1997, Congress enacted the Foreign Air Carrier Support Act to require that foreign air carriers operating flights to and from the United States meet the same standards of victim assistance as their U.S. counterparts.

In December 2009, the Office of Transportation Disaster Assistance (TDA) staff took part in the first meeting of Rail Passenger Disaster Task Force. Under the direction of the U.S. DOT, the task force is required by the Rail Passenger Disaster Family Assistance Act of 2008 to develop a model plan to assist rail passenger carriers in responding to passenger rail accidents and to provide recommendations on improving the timeliness and accuracy of accident notification to family members. The task force includes representation from Amtrak, the American Red Cross, and family members affected by major rail accidents.

TDA Facts

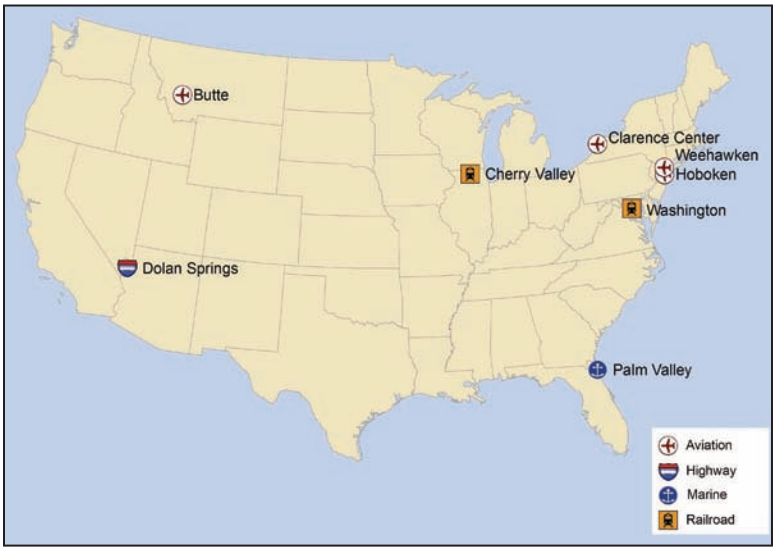
⇒ *In 2009, TDA personnel launched on 7 major accident investigations and 1 regional aviation investigation.*

⇒ *Since its inception, TDA personnel have launched on 150 total NTSB investigations.*

⇒ *In 2009, a total of 220 students attended TDA training courses.*

When TDA responds to an accident, a team of specialists is launched with expertise in victim services, emergency operations, and victim recovery and identification. While the office is responsible for major aviation accidents and recently major rail passenger disasters, the team has assisted in accidents in all other modes of transportation, including support to regional investigators for general aviation accidents.

Primary responsibilities of the team upon arrival at an accident site include coordinating resources of local, state, and federal agencies; establishing a Joint Family Support Operations Center; and ensuring that the airline establishes a Family Assistance Center. In addition, the team maintains contact with family members following the on-scene phase of an accident to provide investigation updates and notification of public hearings and/or Board meetings and to respond to various other questions and concerns raised by family members.



Map showing TDA Launches During 2009

Accident Launches

Aviation Accident, Hoboken, New Jersey

On August 8, 2009, a Piper PA-32R-300 airplane, N71MC, and a Eurocopter AS350 BA sightseeing helicopter, N401LH, were substantially damaged following a midair collision over the Hudson River near Hoboken, New Jersey. The three victims aboard the airplane and six victims aboard the helicopter were killed; five of the victims were Italian nationals. Two TDA specialists were launched to support the Office of Aviation Safety, families of the victims on both aircraft, the local medical examiner, local authorities, the U.S. Department of State, and the Italian Consulate.

Railroad Accident, Washington, District of Columbia

On June 22, 2009, two WMATA trains collided on the Red Line. There were 9 fatalities and 51 injured passengers transported to local hospitals by emergency medical services from both trains. Two TDA specialists were launched to support the NTSB Office of Railroad Safety, survivors, employees, victims and their families, WMATA, and local authorities.

Railroad Accident, Cherry Valley, Illinois

On June 20, 2009, a Canadian National freight train derailed several tank cars carrying ethanol at a grade crossing in Cherry Valley, Illinois resulting in an explosion and fire. The accident resulted in 1 fatality, 9 injured, and approximately 400 persons temporarily evacuated from their homes and businesses. Two TDA specialists were launched to support the NTSB Office of Railroad Safety, the victims and their families, the local community, and the railroad.

Marine Accident, Palm Valley, Florida

On April 12, 2009, a 22-foot unnamed recreational vessel struck a moored uninspected towing vessel at mile marker 195 of the intracoastal waterway. There were five fatalities and nine injured on the recreational vessel. A TDA specialist was launched to the accident to support the NTSB Office of Marine Safety, the families affected by the accident, survivors, and other local authorities.

Aviation Accident, Butte, Montana

TDA Facts

⇒ *In 2009, TDA staff participated in the initial meeting of the DOT Rail Task Force required by the Rail Passenger Disaster Assistance Act of 2008.*

⇒ *TDA staff continues to provide support to family members for approximately 125 general aviation accident investigations*

On March 22, 2009, a Pilatus PC-12/45 crashed on approach to Bert Mooney Airport, Butte, Montana. The flight was operated as a personal transportation flight under the provisions of 14 CFR Part 91 and was diverting to Butte at the time of the accident. The airplane was destroyed in the collision and post crash fire. All 14 persons onboard the airplane were killed in the accident. Two TDA specialists were launched to the accident to support the NTSB Office of Aviation Safety, the families affected by the accident, the local medical examiner, and other local authorities.

Aviation Accident, Clarence Center, New York

On February 12, 2009, a Colgan Air Inc., Bombardier Dash 8-Q400 d.b.a. Continental Connection flight 3407, crashed during an instrument approach to runway 23 at the Buffalo Niagara International Airport, Buffalo, New York. The crash site was approximately 5 nautical miles northeast of the airport in Clarence Center, New York, and mostly confined to one residential house. All 49 people on board the airplane and 1 person on the ground were fatally injured and the aircraft was destroyed by impact forces and postcrash fire. All six TDA specialists were launched to Buffalo to support the victims' families, local authorities, the medical examiner, the NTSB Office of Aviation Safety, and the airline.

Highway Accident, Dolan Springs, Arizona

On January 30, 2009, a 24-passenger capacity tour bus traveling northbound on U.S. 93 in Mohave County, near Dolan Springs, Arizona, crossed the median, rolled over and came to rest in the southbound lanes. All the passengers were Chinese nationals on a tour of the United States. Seven were killed and 14 others were injured. A TDA specialist was launched to assist the NTSB Office of Highway Safety, survivors, Arizona and Nevada authorities, the Department of State, and the Chinese Consulate. Assistance was provided to victims located in hospitals in both Arizona and Nevada.

Aviation Accident, Weehawken, New Jersey

On January 15, 2009, US Airways flight 1549 incurred multiple birdstrikes during initial climbout from LaGuardia Airport. The airplane subsequently lost thrust to its engines and ditched in the Hudson River. Five crewmembers and 150 passengers were on board, 24 of which were transported to hospitals; two emergency response personnel were also taken to a hospital. Two TDA specialists were launched to the scene to assist NTSB Office of Aviation Safety investigators. Support was also provided to the survivors, airline, and federal, state, and local authorities.

Regional Accident Support

In addition, TDA staff continues to provide support to family members for approximately 125 general aviation accident investigations.

NTSB Training Center Courses

In 2009, TDA provided comprehensive courses for professionals who assist families of major transportation accident victims. The hands-on instruction provides participants with operational expertise that enables them to respond more effectively to transportation disasters. These courses bring together leading experts in the field and cover a wide range of topics, including initial accident notification, grief and trauma, mass fatality management, multicultural memorial services, and effective family briefings. (See the Training Center section of this report for additional information on TDA training.)

In 2009, TDA offered five courses at the Training Center:

- **Family Assistance During Transportation Disasters (TDA 301 – offered twice).** Topics included federal and commercial carrier partnerships, accident notification, and NTSB family assistance response, on-scene accident operations, family assistance operations, family briefings, traumatic grief and mourning, and forensic recovery and identification operations.

- **Advanced Skills in Disaster Family Assistance (TDA405).** Topics included key techniques for effective family assistance leadership in disaster situations, practical strategies for disaster crisis management, managing family assistance operations, integrating lessons learned from recent disasters into the next generation of family assistance operations, and an exercise for participants to establish and operate a Family Assistance Center.
- **Mass Fatality Incidents for Medicolegal Professionals (TDA403).** Topics included history and evolution of mass fatality incident response, roles of federal agencies involved in transportation mass fatality response events, victim recovery and working with the FBI Evidence Response Team, theory and practice of victim identification, including the use of DNA technology, family assistance center operations and family briefings, management of personal effects, collection of antemortem data (medical, dental, DNA), changes in procedures in criminal events, survival factors issues for the forensic responder, post-response issues: site visits, memorials, family interactions, site mitigation, media relations in mass fatality events, and practical exercises in recovery and morgue operations.

- **Transportation Disaster Response—Airports (TDA 404).** Topics included understanding the unique response requirements for the two primary types of aviation disasters and how victims are affected by them, dealing with issues unique to accidents and incidents involving airlines with limited airport staff, determining who should be considered a "family member," assisting with the immediate needs of family members in the first 12 hours after an accident, planning a Friends and Relatives Reception Center and protecting family members' privacy, transitioning family

members from the Friends and Family Reception Center to the airline-established Family Assistance Center, understanding the FBI's role in criminal transportation accident investigations and family support services, communicating effectively with local and State responders, the NTSB, the FAA, the FBI, and airlines and airport tenants.

- **Transportation Disaster Response – A Course for Emergency Responders (TDA 402) – New for 2008.** Designed specifically for emergency responders and planners, this course provides participants with the tools to most effectively manage a major transportation disaster. Audio/video materials, case studies, recent examples and panel discussions are employed to illustrate key principles of the unique aspects of responding to major transportation disasters. Some of the topics covered include, integrating ICS and investigative processes during a transportation disaster, responding to transportation events involving terrorism and/or hazardous materials, maximizing resources in site security and support staffing, handling media inquiries and managing press at the scene, communicating with the local community and families of the victims, providing assistance to family members, forensic aspects of recovery and identification, and long-term issues facing the affected community following a major disaster. This course was developed and presented with direct input from the New Jersey State Police, Office of Emergency Preparedness.

TDA Partnerships with Other Agencies

The NTSB and TDA have memoranda of understanding with the American Red Cross, U.S. Department of Homeland Security, U.S. Department of Defense, U.S. Department of State, and U.S. Department of Justice. Together, these agencies collaborate to support both the investigative and family assistance efforts at major accidents.

TDA held an air carrier meeting in Washington, D.C., on April 1, 2009. This meeting brought together family assistance personnel from major air carriers to examine recent responses, discuss lessons learned, and address concerns.

In 2009, the NTSB also presented information to numerous groups, including Maryland Transportation Authority Police, State of New Jersey, State of Iowa Emergency Preparedness, Mine Safety Health Administration, Scientific Working Group on Forensic Anthropology, FBI National Academy – Crisis Management Course, Armed Forces Institute of Pathology, Federal Emergency Management-NIMS Working Group, FBI Office for Victim Assistance, Management Conference, Department of Health and Human Services, U.S. Coast Guard Alaska, senior law enforcement commanders for the UAE Governments, Metropolitan Washington Airports Authority, and Florida Inter-Service Family Assistance Committee.

In addition, TDA held seminars and meetings focusing on family assistance, first responder responsibilities, and management of transportation disasters for Southwest Airlines, United/United Express Airlines, Continental Airlines, Virgin America, Emirates Airlines, New York City Chief Medical Examiner's Office, FBI Airport Liaison Agents National Conference,

New Jersey Emergency Preparedness Association Annual Conference, John F. Kennedy International Airport Terminal 4 Managers Association, and the Islip/MacArthur Airport Authority.

Key Challenges

- Implementation of the Rail Passenger Disaster Family Assistance Act of 2008 (charging the NTSB with primary responsibility for coordinating assistance to victims of major passenger rail disasters) will require extensive resources that are not currently available at the NTSB.

Significant Outcomes and Achievements

- In 2009, TDA staff revised and updated the Federal Family Assistance Plan for Aviation Disasters, a comprehensive response plan outlining the roles and responsibilities of various responder agencies.
- TDA staff coordinated a meeting with the leadership of all active family member groups. This meeting was attended by the Chairman and key NTSB staff and was held to ensure an effective exchange of information between the NTSB and active family member groups.
- A total of 44 students attended the TDA course *Transportation Disaster Response – A Course for Emergency Responders.* The course provides participants with the tools to most effectively manage a major transportation disaster.

International Outreach and Safety Activity

During 2009, the NTSB developed and published three international outreach plans to ensure an integrated and systematic approach for international outreach and advocacy. The *International Advocacy Plan* focuses on the NTSB's advocacy efforts through other investigative agencies, as well as Canadian highway officials. The *International Aviation Strategic Plan* supports aviation safety by promoting interaction with ICAO to help revise ICAO standards and recommended practices (SARPS) and foster development of new guidance protocols. Finally, the *International Marine Coordination Plan* describes the objectives of the NTSB's participation in international maritime affairs. All three plans are fully aligned with goals and objectives contained in the *NTSB 2010-2105 Strategic Plan*.

The following are key international outreach accomplishments.

- NTSB staff presented professional papers at the Flight Safety Foundation International Aviation Safety Symposium: one on industry efforts to combat in-flight aircraft fires, and another on actions to preclude the recurrence of well known air accident causal factors.
- NTSB staff made a professional presentation for an assembled group of South Asia state and government executives on the theme of airport operations safety and the prevention of runway excursions and incursions.
- The NTSB Chairman and staff presented presentations at the International Society of Air Safety Investigators to emphasize the international role of states of manufacture in accident investigations around the world.
- NTSB staff participated as a lead investigation agency for an underwater recovery workshop and on-sea demonstrations hosted by the European Civil Aviation Conference.
- The NTSB hosted three executive delegations from Southeast Asia in conferences at the NTSB Training Center to promote the development of executive leadership in the area of transportation safety.
- NTSB staff hosted about 30 visits from foreign delegations to promote various aspects of their state aviation safety programs, including visits from the European Aviation Safety Agency, ICAO, and the airworthiness authorities from a number of states in Africa, Brazil, Ecuador, Latin America, and the Caribbean.
- NTSB staff assisted the Safe Skies For Africa program in the organization of an East Africa Region Safety Conference in Nairobi and made presentations to highlight the aviation safety issues of the region.
- NTSB subject matter experts presented university lectures on accident investigation for a specially tailored course to civil aviation officials of Nigeria.

- NTSB staff continued to participate in several ICAO study groups to determine the future requirements for flight recorders and the protocols for the reporting and analysis of aviation accidents and serious incidents in future proactive programs.
- NTSB staff participated in international aviation safety data working groups, and continued to serve on the ICAO Safety Indicator Study Group.
- NTSB staff completed its involvement in the European Organization for Civil Aviation Equipment Working Group for lightweight flight recorder specification development with the publication of the specification.
- NTSB staff actively participated in an international working group to evaluate new flight recorder technology in the wake of the Air France accident over the Atlantic Ocean in June 2009.
- NTSB staff delivered a keynote address at the International Winter Operations Conference in Toronto, Canada, in which recent icing accidents, snow-contaminated runway accidents, and NTSB recommendations related to icing were reviewed.
- NTSB staff continued active involvement in the Marine Accident Investigators International Forum and IMO issues, including participation in Flag State Implementation, Standards of Training, Certification and Watchkeeping for Seafarers, and Navigation subcommittees, and provided support to the panel of experts in review of formal safety assessments.
- NTSB staff continued its participation in the International Transportation Safety Association by attending the 2009 meeting in Sweden.

Information Technology

The primary mission of the Office of the Chief Information Officer (CIO) is to enable the execution of the NTSB safety mission by providing information technology (IT) services that support and improve key work processes. CIO also performs other critical agency functions, such as ensuring compliance with records management and the Freedom of Information Act and Privacy Act support.

CIO — 2009 Key Office Information	
Number of Employees: HQ: Regional:	 23 1
Help Desk Requests	
Total Requests Submitted Closed\Successfully Resolved	6,824 91%
Total Web Posting Requests	1,195
Key 2009 CIO/IT Milestones	**5**
• Upgraded the agency's core database tracking system for aviation accidents & incidents (e-ADMS) • Implemented NTSB-wide virtual fax solution • Implemented a new SharePoint based intranet portal • Implemented a "Kid's Page" on the public website • Eliminated FOIA backlog & posted over 1,000 investigative dockets on the public website	
Freedom of Information Requests	
Total Requests CY2009: % Requests Processed CY2009:	319 96.2%
Public Website Points of Origin	
Domestic: International:	64.9% 35.1%

In keeping with best practices, IT Strategic Goals and focus areas are aligned with overall NTSB Strategic Goals. A summary of how IT Strategic Goals contribute to overall NTSB Strategic Goals is presented below. In addition, internal and external objectives are met by adhering to a core framework of five Strategic Principles in delivering IT products and services:

- ***Alignment:*** The NTSB's strategic mission and management goals are supported by aligning IT with major program areas.
- ***Enterprise Approach:*** To maximize effective use of technology, the NTSB is migrating to integrated, NTSB-wide business processes and technologies.
- ***Teamwork:*** Offices serve as partners for a variety of IT initiatives. This approach fosters shared ownership, embraces diversity, leverages strengths and is consistent with best practices.
- ***Process Maturity:*** Continuous improvement in IT processes is achieved by following appropriate published process maturity models.
- ***Measurable:*** Achievement of strategic goals is measured and reported regularly.

NTSB IT Strategic Goals

IT Strategic Goals

The NTSB has seven IT Strategic Goals, which are fully aligned with the four overall NTSB Strategic Goals.

- ***Enterprise Architecture (EA)*:** Leverage EA to improve the NTSB's mission performance and realize its strategic goals and objectives.
- ***IT Security*:** Protect the availability, confidentiality, and integrity of the NTSB's IT resources.
- ***E-Government*:** Improve the efficiency and effectiveness of NTSB business processes.
- ***IT Capital Planning and Investment Control*:** Improve the planning, execution, and management of IT investments.
- ***IT Infrastructure*:** Provide enterprise solutions – improving the quality, accessibility, and information-sharing capabilities between the NTSB and its customers.
- ***Information and Records Management*:** Create an effective knowledge-sharing environment while meeting information management standards and requirements.
- ***IT Workforce Management*:** Ensure the availability of IT human capital capable of meeting the goals and NTSB mission challenges.

Key Challenges

- Meeting the need for enhanced IT security in support of Homeland Security initiatives and in response to sophisticated threats.
- Effectively managing the integration of new and emerging technology into core NTSB business processes that support the agency mission.
- Meeting the increased expectations of stakeholders for innovative and faster IT service applications, and balancing those expectations with the necessity to deploy technology in a systematic, cost-effective, and secure manner.

Significant Outcomes and Achievements

- The NTSB's Enterprise Architecture (EA) program continued to make significant contributions in 2009. EA staff updated the NTSB's Enterprise Architecture Transition Roadmap, enhanced the depth and breadth of information available on the NTSB Project Management Toolset Portal and led the NTSB-wide deployment of a virtual fax solution.
- The IT Security program continued to improve in 2009. For example, the remaining three longstanding U.S. DOT Office of Inspector General recommendations were closed and a number of General Accountability Office (GAO) recommendations were also closed. As a result of sustained

improvement in the NTSB's IT security posture, the agency received its most positive Federal Information Security Management Act report to date.

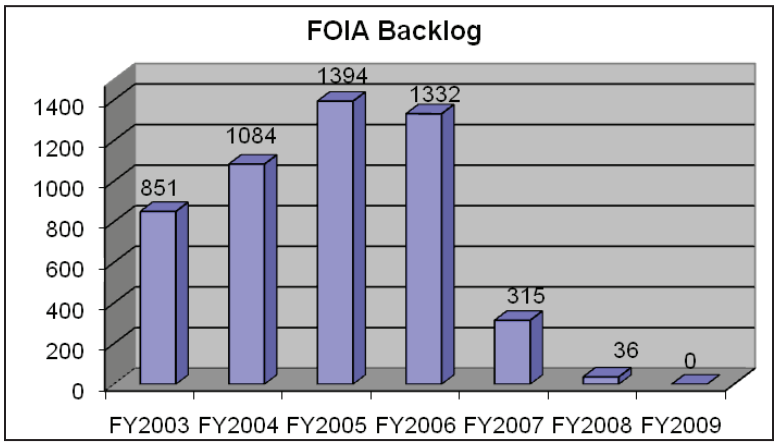
- In 2009, the Systems Support Division focused on providing application upgrades, improving business processes, and providing greater and easier access to data and information. The NTSB's core system for tracking aviation accidents and incidents was upgraded and a new intranet portal based on Microsoft's SharePoint platform was deployed to improve the collection and dissemination of data and information across the agency. In addition, a number of applications designed to improve business processes also based on the SharePoint platform reached the final stages of testing in 2009. The NTSB's public website saw the addition of a "Kids Page" and FAQ pages for modal offices.
- The Computer Services Division (CSD) in CIO continued to upgrade the NTSB's IT infrastructure, enhance IT security, and improve customer service delivery. In 2009, CSD achieved the goal of encrypting 100 percent of mobile computing devices. To improve communication with customers requesting help desk support, CSD upgraded the help desk system interface. Customers now have multiple options to check on outstanding and completed help desk requests.

Docket Management and FOIA

⇒ *In 2009, the NTSB began to post investigative docket materials on its public website as a standard practice; over 1,000 dockets were posted in 2009.*

⇒ *The NTSB's Freedom of Information Act request backlog was eliminated in 2009.*

- The Records Management Division (RMD) continued to improve the posture of the NTSB's FOIA program. The longstanding FOIA backlog was eliminated, current outstanding requests remain within the performance threshold set for RMD, and proactive measures are in place to make more information available to NTSB stakeholders in a timely manner. In 2009, the pilot program of posting investigative dockets on the public website became a standard production process. A total of 1,074 investigative dockets were posted to the public website by the close of calendar year 2009.



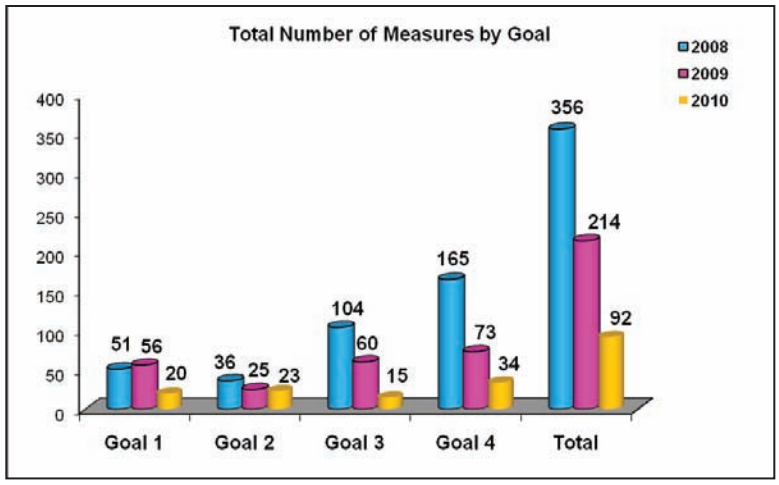
Planning and Performance

Organizational Assessment

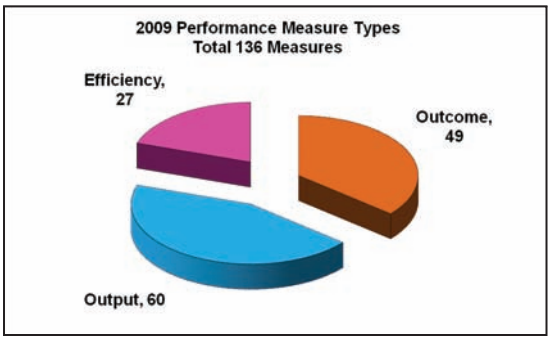
During 2009, the NTSB made significant improvements in the area of planning and performance, in support of goals and objectives outlined in the *2010-2015 NTSB Strategic Plan*, and its predecessor document, the *2007-2012 NTSB Strategic Plan*. As background, the strategic plan specifies four strategic goals and 17 strategic objectives to which all NTSB activities are aligned and individual contributions are made. The goals and objectives are shown in the following table.

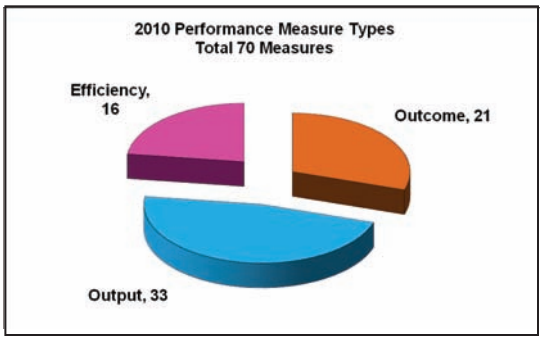
Strategic Goal	Strategic Objective
Accomplish Objective Investigations of Transportation Accidents	Make Judicious Selections of Accidents to Investigate in Each Transportation Mode
	Appropriately Scale the Investigative Response to Accidents
	Develop and Maintain State-of-the-Art Investigative and Procedural Tools for Accident Investigations
	Ensure Effective Coordination and Delivery of Transportation Disaster Assistance to Accident Victims
From Investigations, Recommend and Advocate Actions That Will Improve Transportation Safety	Provide Objective and Independent Advice on Transportation Safety Issues
	Engage in Outreach with the Transportation Community to Advance Safety
	Advocate the Implementation of Safety Recommendations with Emphasis on the Most Wanted List of Transportation Safety Improvements
	Constructively Affect the Transportation Industry
	Improve Investigative Readiness by Identifying Emerging Safety Issues
	Maintain a Fair and Expeditious Appeals Process for Airmen and Mariners
Outstanding Stewardship of Resources	Employ Project Management Best Practices to Maximize the Effective Use of Agency Resources While Maintaining High Quality
	Effectively Use the Allocated Funds to Execute the Mission
	Utilize Effective Information Technology to Accomplish the Organization's Mission
Organizational Excellence	Integrate Long-Range Planning in All Elements of NTSB Business
	Align and Improve Human Capital Planning
	Maintain a Competent and Effective Workforce through Targeted Training and Employee Development
	Foster Effective Internal Communications

The goals and objectives of the NTSB are implemented and measured each year in the form of performance measures, which are incorporated in the NTSB Operating Plan. The operating plan is the agency planning document used to establish performance goals. In addition, the NTSB has instituted performance-based objectives at the individual level with links to office operating plans. This overall agency effort culminated with the recent achievement of Senior Executive Service certification in performance management by Office of Personnel Management (OPM). In 2009, the NTSB continued working on outcome-based performance management, which continues to evolve and improve over time.



As background, in FY 2008 (ending September 30, 2008), the agency tracked 356 performance measures, which represented a variety of agency activities. Evaluations of these measures indicated that the total could be narrowed down to consist of more closely relevant indicators of agency success. For FY 2009, the agency moved toward this concept by putting an emphasis on a smaller family of performance measures, consisting only of outcome-, output-, and efficiency-based targets.[3] This eliminated the activity-based measures, which made up a large percentage of the previous year's totals but were not directly linked to organizational goals. With this more focused approach, the total number of performance measures tracked was reduced to 214 (of which 136 were unique measures) for FY 2009. Forty-nine (36 percent) of these were outcome or results-oriented measures. In FY 2010, the effort has been further focused by reducing the number of performance measures to 92, with 70 being unique. The smaller number of performance measures have been selected to be more directly related to the agency's mission, goals, and strategic objectives.





3 Output performance measures are specific products or deliverables that are the result of a set of activities. Outcome performance measures indicate public benefits or results that assess quality and effectiveness of an agency's performance. Efficiency measures are indicators of agency productivity.

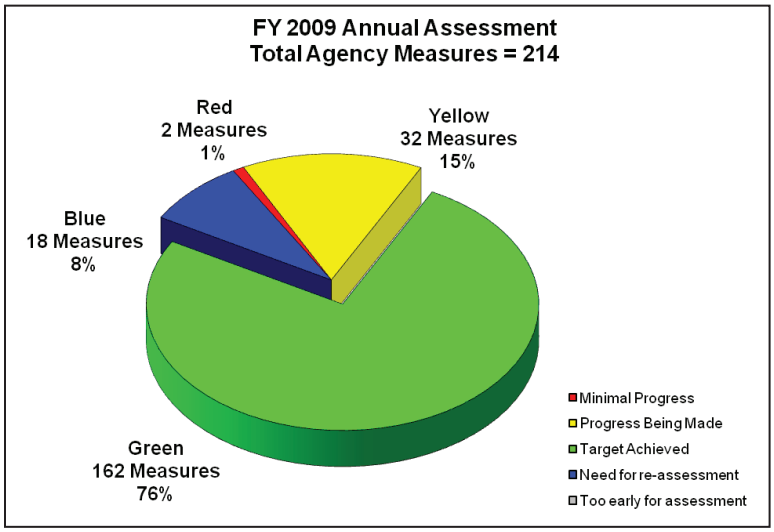
In assessing the organization for 2009, all objectives and performance measures flow from the following strategic goals:

Strategic Goal #1 – Accomplish Objective Investigations of Transportation Accidents to Identify Issues and Actions that Improve Transportation Safety

Strategic Goal #2 – Increase our Impact on the Safety of the Transportation System

Strategic Goal #3 – Outstanding Stewardship of Resources

Strategic Goal #4 – Organizational Excellence[4]



Our organizational assessment consists of evaluating the success of the 214 performance measures—all cascading from these goals during the fiscal year—against specific target levels. Some measures, such as training and internal communications, are common measures and are developed separately for each of the 12 offices, bringing the total performance measures tracked for the year to 214, as opposed to 136 unique measures. In 2009, the specific makeup of the unique 136 performance measures was 49 percent outcome-oriented, a best practice that indicates a direct correlation to industry safety, regulatory activity, or improvement of agency operations. In FY 2010, this best practice has been continued and the operating plan measures for the new fiscal year reflect a similar breakdown within the family of measures.

FY09 Color Coding Annual Assessment

	Green	Yellow	Red	Blue
Goal 1	**46**	**9**	**0**	**1**
Goal 2	**21**	**3**	**0**	**1**
Goal 3	**33**	**13**	**2**	**12**
Goal 4	**62**	7	**0**	**4**
Total	**162**	**32**	**2**	**18**

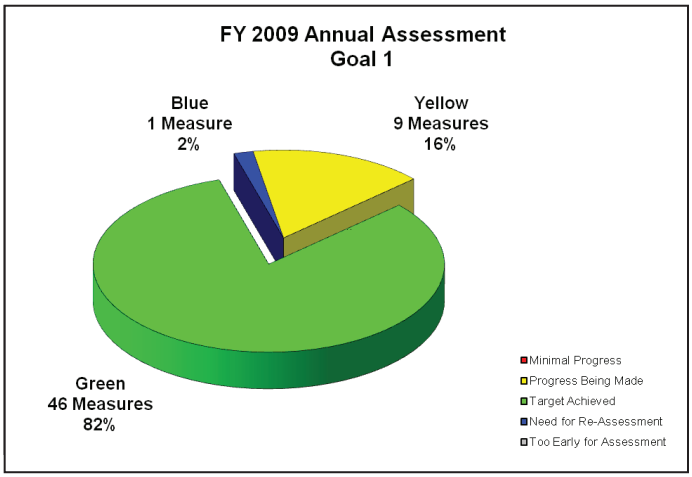
The NTSB uses a color-coding system to determine success of its performance measures. Green indicates that the target was achieved. Yellow indicates that progress is being made. Blue indicates a possible need to reassess the target due to difficulty in tracking or other reasons. Red indicates minimal progress toward achieving a target during the year. During 2009, based on this color coding methodology,

4 The goals have been slightly modified in the revised *2010-2015 NTSB Strategic Plan*, published January 1, 2010.

the agency was fully successful in 162 performance measures of the 214, which is a success level of 76 percent an improvement over the 75 percent success level of 2008. In addition, 32 measures in 2009 were considered to be in the "making progress" category by year-end. A yellow result is still an indicator of progress even though a target level was not fully achieved, in that the agency may be making positive contributions toward achieving a long-term objective. In some cases, this indicates that additional resources may need to be allocated in the following fiscal year to ensure completion of this measure. The NTSB has a policy to develop performance measure target levels each year with an aim to be challenging yet still attainable. A 76 percent success level reflects our view that much was accomplished during the year, but more improvements can be made in the future to enhance program performance. Overall, the agency considers 2009 to be a highly successful year based on the overall roll-up of operating plan data.

Strategic Goal #1

The assessment of the 214 measures can be further divided by strategic goal. As indicated, Strategic Goal #1 is accomplishing objective investigations of transportation accidents. In Strategic Goal #1, which is the core investigative goal of the agency, we achieved significant results during the fiscal year 2009. Although the performance of all NTSB offices can influence this strategic goal, particular emphasis is placed on the modal investigative offices to ensure this goal and its strategic objectives are met. Accomplishing the strategic objectives for this goal ensures effective and efficient investigation of transportation accidents and fosters a transportation industry that is better prepared to address safety issues. Examples of successfully achieved performance measures for this strategic goal in report production and the 2010 target levels are shown in the table below:

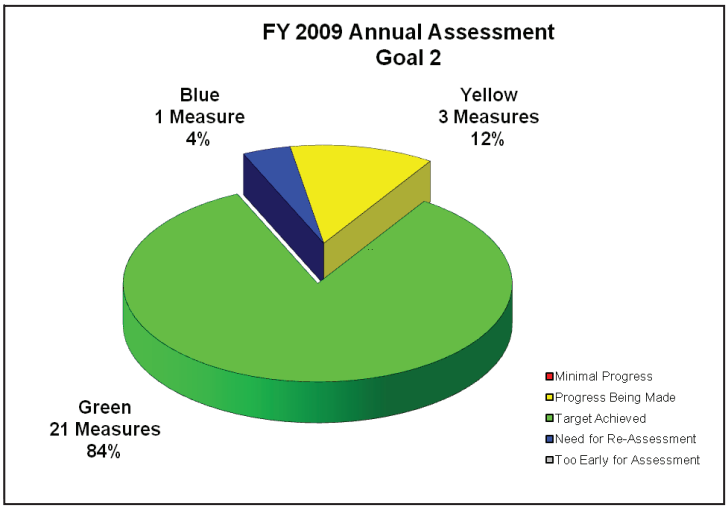


Performance Measure Type	Measure Name	Office	FY09 Target Level	FY09 Results	FY10 Target Level
Output	Number of products adopted by the Board including public hearings	AS	9	10	6
		HS	5	5	4
		MS	3	4	5
		RPH	6	6	5

Overall, we achieved 82 percent of 56 performance measures for Strategic Goal #1, an outstanding record of success. For 2010, there are 20 performance measures that are tracked for this goal.

Strategic Goal #2

Strategic Goal #2 for the agency is to recommend and advocate actions that will improve transportation safety. With emphasis on outreach and advocacy, this goal and its objectives pertain to our leadership in the transportation community, ensuring emerging safety issues are being addressed and that political leadership is aware of public policy implications. This goal also emphasizes the need for the NTSB to promote an understanding of the Most Wanted List of Transportation Safety Improvements. We are pleased to report that the agency was fully successful in 84 percent of the 25 performance measures associated with this goal. Examples of successful measures for Strategic Goal #2 are shown here:



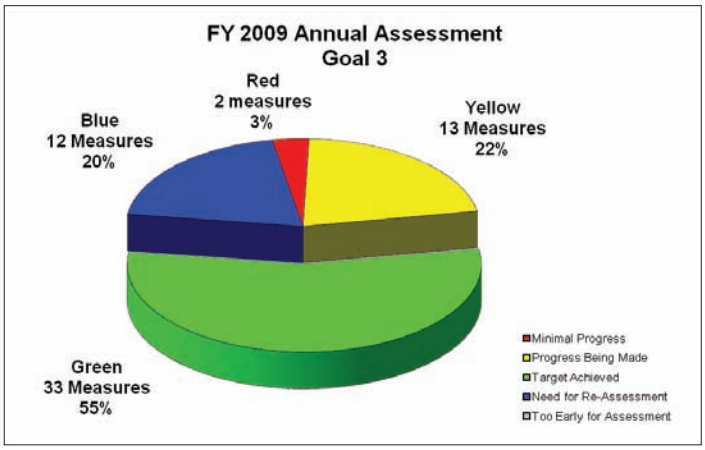
Office	Performance Measure Type	Measure Name	FY09 Target Level	FY09 Results	FY10 Target Level
RE	Output	Number of advocacy efforts to address RE-related Most Wanted List issues and other critical RE-related transportation safety issues	6	7	6
SRA	Outcome	Number of successfully implemented Federal Most Wanted List recommendations within the last 5 years	8	20	20
SRA	Outcome	Number of changes to legislation or regulations that address NTSB state Most Wanted List recommendations	7	35	10
SRA	Outcome	Number of advocacy efforts engaged in to increase NTSB impact on the safety of the transportation system	N/A	309	250

For this goal, we put particular emphasis on the Most Wanted List of Transportation Safety Improvements. During this fiscal year alone several were taken off of the federal portion of the most wanted list. For example, the issue area *Eliminate Flammable Fuel/Air Vapors*

in Fuel Tanks was removed from the list as result of FAA rulemaking action. In addition, two issues areas were removed from the Most Wanted List as a result of Congressional action mandating the FRA to implement positive train control systems and to establish requirements that address train crew fatigue. Outreach and advocacy are essential aspects of the NTSB's mission, and successes in this area achieved during 2009 were particularly meaningful. For 2010, 23 performance measures are tracked for this goal.

Strategic Goal #3

The third strategic goal for the NTSB is outstanding stewardship of resources. We ensure that our limited resources are used in the most efficient manner. Project planning principles are incorporated in all major NTSB work efforts, promoting efficiency in all facets of our operations while ensuring that the agency is able to fulfill its broad mission. During 2009, we continued our commitment to ensuring that the stewardship of resources—including best practices in project planning, controlling costs, and deploying cost-effective technology—was reflected in the operating plans and performance measures of all NTSB offices. Of the 60 performance measures for this area, a full 55 percent were deemed to be fully successful at year-end. Examples of successful performance measures in this area include the following:

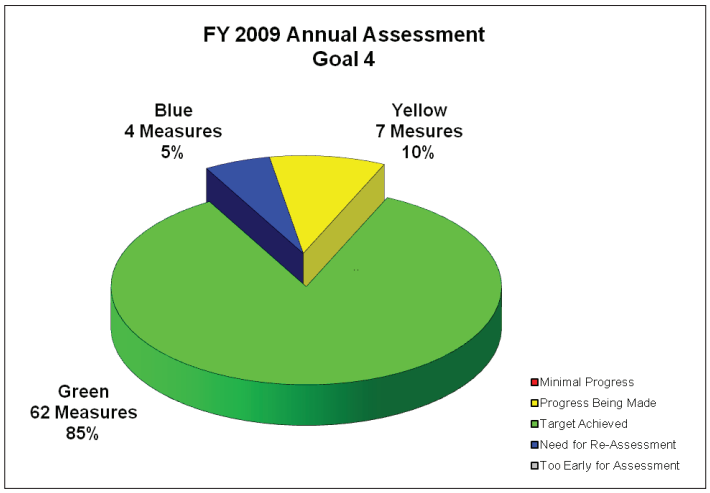


Office	Performance Measure Type	Measure Name	FY09 Target Level	FY09 Results	FY10 Target Level
AD	Outcome	Ensure all contract requirements are awarded within NTSB-established Procurement Award Lead Times	75%	96%	75%
AD	Outcome	Enhance cost recovery for NTSB Training Center equal to or greater than FY2009 levels	Greater than FY2008	Greater than FY2008	Greater than FY2009
CFO	Outcome	Ensure timely submission of annual financial statements to OMB, U.S. Department of the Treasury, and Congress within 7 business days of the established timeframe (all statements)	Yes	Yes	Yes
CFO	Efficiency	Percent of quarterly financial statements submitted to OMB within established timeframes	75%	100%	100%

All NTSB offices make key contributions toward the success of Strategic Goal #3. However, the Offices of the Chief Financial Officer, the Chief Information Officer, Administration, and the Managing Director have a particularly high concentration of performance measures for 2009 in this area, and their efforts directly contribute to achieving this strategic goal. For 2010, 15 performance measures are tracked for this goal.

Strategic Goal #4

Finally, the NTSB's fourth strategic goal is organizational excellence. This goal emphasizes the challenge to devote time and resources to think strategically and develop staff, while maintaining the primary commitment to investigate transportation accidents. In addition, this goal promotes strategies to ensure we foster a work environment that reflects equal opportunity and diversity.



For 2009, long-range plan development was represented by several performance measures. For example, consistent with the requirements established by the Government Performance and Results Act of 1993, the development of the agency revised strategic plan is a key output measure for this goal, in addition to other plans that are reviewed and updated each fiscal year. Examples of successfully achieved performance measures for Strategic Goal #4 appear in the following table:

Office	Performance Measure Type	Measure Name	FY09 Target Level	FY09 Results	FY10 Target Level
CFO	Outcome	Maintain auditable financial information	Auditable financial statements	Auditable financial statements	Auditable financial statements
CIO	Output	Publish updated IT strategic plan	2009 plan	Plan published	2010 plan
MD	Output	Publish annual report to Congress	2008 report	Report published	2009 report
MD	Output	Publish updated strategic plan	1 plan	Plan developed	1 plan

Overall for Strategic Goal #4, the NTSB achieved 85 percent of the 73 associated performance measures. For 2010, 34 performance measures are tracked for this goal.

When looking at the achievement of goals by organizational unit, the success levels are very consistent through the agency. The Office of the Managing Director collaborates closely with each NTSB office to ensure that resources are appropriately allocated across offices to maximize the opportunity to achieve positive results.

The NTSB is pleased with the agency's performance during FY 2009, as shown through the overall achievement of the 12 office operating plans. Through September 2009, the NTSB monitored and evaluated 214 performance measures from the 12 plans and ensured that resources were allocated to maximize achievement. By having offices focus on results-oriented performance measures, management attention was constantly directed toward important agency activities, and this attention improved agency operations. In addition, these improvements directly influenced the achievement of 17 strategic objectives, which in turn contributed to achieving the four strategic goals. Furthermore, by inserting the operating plan measures into individual performance plans, the NTSB promoted accountability for achieving agency goals at an individual level. During 2009, this performance-based culture has become embedded in agency management and staff. The performance-based culture will continue to be enhanced during 2010, as new measures and target levels are tracked and evaluated during the year. The NTSB is optimistic that its results-oriented culture will continue to evolve and promote better governance while accomplishing our mission to improve transportation safety.

NTSB Training Center

Background

Located in Ashburn, Virginia, the NTSB Training Center provides training opportunities for all NTSB employees and others from the transportation community through a variety of course offerings in the various modes of transportation. The core of the program continues to be key investigative courses that focus on competencies important to safety investigations for NTSB staff and outside participants. The Workforce Development curriculum is open specifically to NTSB staff and offers employees access to additional courses focused on career development, improving management skills, leadership, and critical thinking. Investigators from NTSB and from other organizations in the transportation community use the Training Center as a means to improve their accident investigation techniques.

The mission of the NTSB Training Center is to promote safer transportation by:

- Ensuring and improving the quality of accident investigations through critical thought and professional instruction;
- Communicating lessons learned, fostering the exchange of new ideas and new experiences, and advocating scientific and operational excellence;
- Providing a modern platform for teaching accident reconstruction and evaluation; and
- Utilizing its high-quality training resources to facilitate family assistance and first responder programs, sister agency instruction, an understanding of NTSB investigative processes and procedures for potential parties to an investigation, and other compatible federal activities.

Training Center Facts

⇒ *In 2009, participants attended a total of 88 Training Center courses, including 54 courses and seminars in the Workforce Development curriculum that were offered solely to NTSB employees.*

⇒ *During 2009, over 1800 participants completed Training Center courses, seminars and programs; almost 1300 students attended courses at the Training Center campus in Ashburn, Virginia.*

The Training Center's mission supports the overall NTSB mission by working to achieve agency strategic objectives related to training. These strategic objectives are to 1) Maintain a Competent and Effective Workforce through Targeted Training and Employee Development, and 2) Align and Improve Human Capital Planning. The NTSB has developed a detailed draft agency Strategic Training and Development Plan that cascades training strategies into specific performance measures and links to the *NTSB 2010-2015 Strategic Plan*. This plan presents a road map for monitoring and measuring whether present and future competency needs are fully addressed by the NTSB training program, as well as their effects on the strategic plan. In addition, the NTSB's *Strategic Training and Development Plan* cascades objectives from the agency strategic plan into objectives more specifically related to training and development. The plan includes specific performance measures designed to evaluate the agency training program, as well as a full discussion of the NTSB's approach to ensure viable succession management.

In addition, the Training Center uses a facility business plan to support the NTSB's mission more efficiently by providing a broader array of accident investigation and transportation safety training courses to its staff, foreign governments, partners, and others. For example, the Training Center will be offering a new Rotorcraft Accident Investigation Course in FY 2010, which further expands the existing curriculum, and will be offered to individuals outside of the agency. With several objectives in mind, there is a separation between the training function of the Training Center as an organizational unit of the NTSB and the facility itself. This strategy allows the NTSB to continue to focus on enhancing its course offerings at the Training Center, while maximizing revenues by subletting space with minimal effect on the training function.

During 2009, the NTSB continued to evolve the programs at the Training Center while ensuring that the agency's critical investigative responsibilities were not negatively affected. These improvements support the NTSB's accident investigation mission and help promote transportation safety. In addition, the NTSB continued to aggressively recover costs associated with the Training Center by imposing and collecting fees for cost recovery for the Training Center's facilities and services. The collection of tuition and fees for facility use during 2009 continued to make it possible for the Training Center to recover expenses incurred in the delivery of programs, allow for program modifications and improvements in the future, and offset portions of the building maintenance and equipment replacement costs that are anticipated within the next several years.

Training and Educational Needs of NTSB Employees

Since 2007, the NTSB's Training Officer has focused on improving the training programs for NTSB employees. The Workforce Development Program was launched during 2007 for NTSB employees as the signature effort to improve leadership and management training. Since the program's inception, the NTSB Training Center has offered 90 courses, programs and seminars in the Workforce Development curriculum. The Project Management curriculum was launched in 2008, as well as executive leadership offerings to support individual development plans. In addition, partnerships with other U.S. Government agencies have continued with the Small Agency Council (SAC) partnership and the GoLearn partnership with OPM.

In 2009, the NTSB Training Center continued to expand its offerings to NTSB personnel with a wide variety of training opportunities that directly supported many of the agency strategic plan objectives. The training offerings have served the needs of employees in several learning modalities and in diverse locations. While the clear majority of training occurred at the NTSB Training Center, some courses were offered in the regions closest to the NTSB regional offices to save on travel expenditures.

An improved and enhanced agency training plan was developed by the Training Center for 2009. The plan incorporates the results from the 2008 training needs assessment survey, individual development plans, and lessons learned from 2008 training. The training for 2009 included the following:

- The NTSB Training Officer continued to expand and evolve the workforce development training program to create the best fit for the maximum number of individuals at the NTSB. Recognizing the difficulties involved in leaving the workplace for instructor-led training, the Training Officer has broadened the scope of blended learning to embrace more online training and to offer seminars located closer to the regional offices.
- As the workforce development training matures, the Training Center has taken on more of the mandatory training requirements in the agency. Newly acquired requirements include all safety training, computer security, Privacy Act, and No FEAR Act training. To facilitate the safety training program, the Training Center expanded its online training resources to include all of the required safety and compliance training from its partnership with OPM through the GoLearn contract.

The Training Center has assumed responsibilities for all mandatory fiscal training by partnering with the Chief Financial Officer to provide training through a partnership with the Department of the Interior's National Business Center.

- Partnerships with other federal agencies continued to enhance the NTSBs training program. Three separate initiatives

with the Department of the Interior include the SES Forum, the Career, Balance, and Diversity Forum, and in Denver, Colorado, the Career, Quality of Life, and Leadership Forum. The NTSB training partnership with the Small Agency Council continued with 21 courses provided to NTSB personnel throughout the year.

- In supporting the *NTSB 2010-2015 Strategic Plan*, the Training Center continued to offer project management courses with the first project management cohort scheduled to complete its training cycle in 2010. In addition, the Training Center presented its first Critical Thinking for Investigators course to enhance the skills of the investigators in the Office of Aviation Safety.
- A major training effort to provide Microsoft Office 2007 training to NTSB was completed in this fiscal year and, in partnership with the Chief Information Officer, provided for the expanded introduction of this software program to the agency's computers.

Training Offered to the Transportation Community

The Training Center attracts members of the United States as well as the worldwide transportation community from a variety of governmental agencies and transportation entities. Past participants have come to rely on the training received at the Training Center and either return for additional training or encourage colleagues to attend courses offered in accident investigation, training in transportation disaster response, media response, human factors, photography, conducting presentations, and report writing.

The Training Center has embarked on the development and deployment of the following series of new training initiatives in 2009:

- Marine Safety Investigations for Marine Professionals (2 days) (FY 2009)
- Marine Accident Investigation (5 days) (FY 2009)
- Basic Aviation Accident Investigation Course – Army Air National Guard (FY 2009)
- Rotorcraft Accident Investigation (5 days) (first offering in FY 2010)

Training Center personnel are also examining the possibilities of presenting some courses in various centrally located areas throughout the United States to get the safety message out to a broader audience. The following pilot programs were rolled out in 2009 or planned for 2010:

- Managing Communications During an Aircraft Disaster (Two offerings in FY 2009)
- Family Assistance During Transportation Disasters (Planned for FY 2010)

Participants

Participants in NTSB Training Center programs include previous as well as potential parties to NTSB investigations, such as equipment manufacturers and unions; disaster relief agencies, and representatives from local, state, and federal law enforcement agencies.

Training Center Fact

NTSB training is known throughout the world as a valuable means to increase investigative knowledge.

Transportation safety and security is a global endeavor, and many of the participants in NTSB Training Center programs are the NTSB's foreign counterparts: transportation accident investigation agencies from around the world, including those from developing countries. The number of foreign investigators attending Training Center programs has remained steady each year. In fact, a total of 32 foreign countries sent a total of 100 investigators and other transportation professionals to Training Center programs in 2009.

Partnerships

Furthering its commitment to meeting the training needs of those in other areas of the government and the transportation safety and security and emergency response communities, the NTSB Training Center continues to build upon the alliances and partnerships with private organizations and federal agencies. For example, the Training Center worked with the Army Air National Guard (ANG) Safety Center at Fort Rucker to develop and present a 2-week Aviation Accident Investigation School exclusively tailored for the ANG. It was presented for the first time in August 2009, and they have asked that it be continued at least once per year.

The following is a list of the organizations that participated in alliances or partnerships with the NTSB Training Center during 2009:

- Federal Aviation Administration
- Armed Forces Institute of Pathology
- George Washington University
- U.S. Coast Guard
- National Association of State Boating Laws Administrators
- Federal Bureau of Investigation
- Director of National Intelligence – Investigative Training/Critical Thinking
- Department of Homeland Security – Investigative Training/Critical Thinking

Training Programs

In 2009, 1,893 individuals attended 88 NTSB Training Center courses, programs and seminars as compared to 1,200 individuals during 2008. Several programs were offered more than once during the year.

Title	Total Students
AVIATION	
Aircraft Accident Investigation (offered twice)	119
Survival Factors in Aviation Accidents	14
Aircraft Accident Investigation for U.S. Army – Air National Guard	27
Aircraft Accident Investigation for the Civil Aviation Administration of the People's Republic of China	15
Accident Investigation Orientation for Aviation Professionals (offered twice)	54
INTERMODAL	
Hazwoper Refresher (offered 2 times)	35
Hazwoper 40-Hour	5
Crane Operator	10
Confined Space Entry	14
Forklift Operator	10
Respirator Training	141
Laboratory Safety	18
Blood Borne Pathogens Suit Up Exercise	4
On-Scene Safety	50
Trench Safety	3
CPR/AED Certification Training	88
Cognitive Interviewing for Accident Investigators-BASIC	58
Cognitive Interviewing for Accident Investigators-ADVANCED	53
Investigating Human Fatigue Factors	71
MARINE	
Marine Accident Investigation (offered twice)	165
PUBLIC AFFAIRS	
Managing Communications During an Aircraft Disaster	81
Managing Communications During an Aircraft Disaster for Delta Airlines	50

Managing Communications During an Aircraft Disaster for Orange CO Airport	51
RAIL	
Accident Investigation Orientation for Rail Professionals	27
TRANSPORTATION DISASTER ASSISTANCE	
Family Assistance (offered twice)	108
Advanced Skills in Transportation Disaster Family Assistance	31
Airport Preparedness Program	20
Transportation Disaster Response-Emergency Responders	56
Mass Fatality Incidents for Medicolegal Professionals	42
WORKFORCE DEVELOPMENT CURRICULUM FOR NTSB EMPLOYEES	
Audio Books	76
Blackberry Boot Camp	10
Outsmart Outlook	14
Books 24/7	27
Project Management Scheduling and Cost Control	15
Media Training	16
Critical Thinking for Investigators	25
New Supervisor	10
Microsoft Office 2007 Training (20 offerings)	121
Momentum Overview	7
Momentum Overview for Budget Professionals	3
Time Management-Organizing for Success	17
Mid Career Planning	5
Retirement Planning	31
Personal Productivity	17
Project Management Principles	9
Project Management: Contract Management Principles & Practices	12
Project Management Procurement	13
Small Agency Council Courses (21 offerings)	25
IMS Seminars (10 sessions)	18
CBD Forums (2 courses)	2
TOTAL	1,893

Continuing Education Units

The NTSB Training Center is authorized by the International Association for Continuing Education and Training (IACET) to award continuing

education units (CEUs) for many of its courses. The IACET, whose members include 650 businesses, government agencies, higher education institutions, nonprofit corporations, and individuals, authorizes select organizations to issue CEUs only when they can demonstrate a consistent adherence to strict educational training guidelines and protocols. Many organizations and agencies use these credits for staff development, and individuals use them to maintain professional certifications.

Facility Use

The Ashburn facility is a 72,000 square-foot building divided into three primary components. The first floor consists of 21,000 square feet of office space and meeting rooms. The second floor contains 21,000 square feet of classroom space, student support areas, and meeting rooms. Finally, the warehouse includes 30,000 square feet of industrial enclosed storage and staging space and is currently used to store the reconstruction of the TWA flight 800 wreckage, and parts and components from other NTSB accident investigations, such as the I-35W collapse bridge in Minneapolis, Minnesota. Consequently, the warehouse is actively used for training and wreckage examination.

The NTSB Training Center facility provides the NTSB space to continue operations during emergencies in accordance with the Continuity of Operations Plan (COOP). Space has been made available, for a fee, through interagency agreements with other federal agencies to ensure continued operations for their essential functions, as well. Rents from subleases offset costs of the facility. The NTSB maintains lease agreements with the Federal Energy Regulatory Commission and the U.S. Court of Veterans Appeals for COOP space availability and use. The NTSB continues to sublet the majority of the first floor to the Department of Homeland Security, Federal Air Marshalls Service. During 2009, the NTSB continued its agreement with the Department of Homeland Security – Intelligence and Analysis Division to use three classrooms on the second level on a continuing basis.

The NTSB also rents available classrooms on the second floor when not in use by the agency. The NTSB continues to seek out federal agencies that have recurring training space needs but are using appropriated funds to rent space from outside commercial entities. These efforts have resulted in the Training Center increasing its overall unitization rate to over 80 percent.

During 2009, portions of the operating costs were recovered through lease and user agreements established with a variety of governmental or transportation-related organizations. The following organizations hosted events in 2009 in the facility:

- American Bus Association
- American Institute of Aviation and Astronautics
- Armed Forces Institute of Pathology
- Captive Resources
- Department of Homeland Security
- Federal Air Marshalls - DHS
- Drug Enforcement Administration
- Flight Safety Foundation
- Federal Bureau of Investigation
- International Association of Chiefs of Police
- National Aeronautics and Space Administration
- National Air Transportation Association
- National Association of State Boating Law Administrators
- Office of the National Director of Intelligence (through SAIC)
- Society of Automotive Engineers International
- United States Coast Guard
- Greater Washington Business Aviation Association
- Compass Air
- National Counter Terrorism Center
- Young Presidents Organization
- Federal Aviation Administration
- Association of Flight Attendants
- United Motor Coach Association
- U.S. Coast Guard

Cost Recovery

The marketing strategy of the Training Center business plan is to maximize cost recovery by offering long-term leases to other federal agencies and appropriate training institutions that are also consistent with ongoing NTSB needs and utilization of the same area. During calendar year 2009, the NTSB Training Center took in $1,917,441 from course tuition and fees, facility rentals, and interagency COOP agreements. This represents an increase of about 25 percent over 2008. Receipts were used to fund the direct costs of providing the programs. In addition, funds were used for maintenance of Training Center equipment, telecommunications upgrades, supplies, and to finance a reserve for equipment replacement.

Training Center Facts

⇒ *The NTSB's utilization of the Training Center has increased dramatically in the last several years and is now over 80 percent.*

⇒ *The Training Center project management curriculum has helped increase the agency's use of project management techniques.*

Key Challenges

- Maintaining or increasing revenue in an environment of extremely high competition for training resources given the state of the economy, private and government reductions in training budgets, and downsizing of staff size within organizations.
- Developing and employing new methods for marketing services, facilities, and courses to other organizations and audiences.
- Developing additional online training alternatives to on-site courses.
- Continuing to upgrade/repair IT and audio-visual systems to address changes in technology.
- Developing and employing an agencywide system for evaluating and measuring the effect of courses to show increased competency development.

Significant Outcomes and Achievements

- Conducted technical training programs and instruction for NTSB investigative staff and transportation safety and security partners to improve the efficiency and effectiveness of NTSB accident investigations. These specialized courses communicate lessons learned, share accident investigation techniques, and foster the exchange of new ideas and experience among organizations that participate in NTSB investigations.
- Used its high-quality training resources to facilitate Transportation Disaster Response programs, collaborative instruction with partner agencies, and other compatible activities.
- Used TWA800 briefing to educate federal agencies, state and local agencies, groups that work in the transportation fields, and certain educational groups. Over 90 of these briefings were given to these groups in 2009.
- Continued providing a diverse array of workforce development courses emphasizing training needs identified in the office training plans, individual development plans, and the training needs survey.
- Assumed responsibility for development and delivery of all mandatory training courses.
- Increased deployment of electronic training resources, including online courses, audio books program, and books on a 24-hour/7-day per week basis to serve NTSB personnel in diverse locations.
- Provided updated computer training to support the acquisition and fielding of new software programs.
- Initiated leadership training for new supervisors in the agency.
- Increased the level of cost recovery for the Training Center.

Office of Administrative Law Judges

Since 1967, the NTSB has served as the "court of appeal" for certificate holders such as airmen, mechanics, or mariners whenever the Federal Aviation Administration (FAA) or the U.S. Coast Guard takes a certificate action.

The NTSB's administrative law judges hear, consider, and issue initial decisions on appeals filed with the Board. Included are appeals from orders issued by the FAA's Administrator that amend, modify, suspend or revoke, in whole or in part, certificates of airmen, air agencies, and air carriers for alleged violations of the *Federal Aviation Regulations* or for lack of qualification; appeals about FAA actions denying applications for the issuance or renewal of airman certificates; and appeals of certain FAA civil penalty orders issued by the FAA against pilots, flight engineers, mechanics, or repairmen where the amount in dispute is less than $50,000. The judges also adjudicate claims for fees and expenses stemming from certificate and civil penalty actions under the Equal Access to Justice Act (EAJA).

The NTSB currently has four administrative law judges. Two are based in Washington, D.C., and hold hearings primarily in the eastern half of the United States. The other two are based in Arlington, Texas, and Denver, Colorado, and hear cases primarily in the western half of the country.

Administrative Law Judges Fact

There were 423 aviation certificate appeals filed with the NTSB's Office of Administrative Law Judges in 2009; 187 of these cases were from emergency orders. The agency's judges held 80 hearings and closed 405 cases in 2009.

Either the certificate holder or the FAA may appeal the judges' decisions to the five-member Board. The Board's review on appeal of its administrative law judges' decisions is based on the record of the proceeding, which includes hearing testimony (transcript), exhibits, and the judge's decision, as well as appeal briefs submitted by both sides.

A certificate holder can appeal the Board's decision to the U.S. Court of Appeals. The FAA also has the right to appeal the Board's decisions to the U.S. Court of Appeals when it (the FAA) determines that the Board's decision "will have a significant adverse impact" on the FAA's aviation safety duties and powers. Airmen and mechanics have the right to appeal all adverse Board decisions to the Court of Appeals.

Upon review of the Board's decision, the Court of Appeals has the power to affirm, modify, or set aside the decision in whole or in part—or, if need is found, to order further proceedings by the Board. The decision of the Court of Appeals is subject to review by the U.S. Supreme Court on writ of certiorari.

In April 2000, the U.S. Congress enacted Section 716 of the Aviation Investment and Reform Act for the 21st Century (Public Law 106-181). This Act expanded the NTSB's jurisdiction to include review of FAA designations of safety enforcement actions as emergencies, which require an order to be effective immediately, upon petition by the affected certificate holder. The Board has delegated its review authority to its administrative law judges. There is no administrative review of the administrative law judges' decisions in these cases.

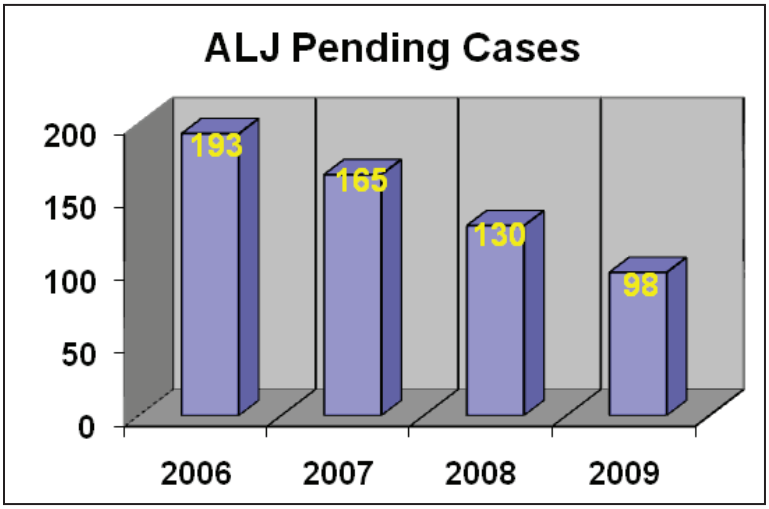
Marine certificate actions are heard first by the USCG's administrative law judges, and may be appealed to the USCG Commandant. The ruling of the Commandant may then be appealed to the NTSB. The Board then follows the same appellate process as it does in considering the initial decisions of its law judges in aviation cases. In 2009, the Board received no marine appeals and issued no rulings on marine cases.

Administrative Law Judges Fact

⇒ *The Office of Administrative Law Judges disposed of 77 percent of its caseload in 2009.*

⇒ *The Office of Administrative Law Judges handled a large volume of emergency cases received in 2009, which by statute requires expedited handling and hearing.*

There were 423 aviation certificate appeals filed with the NTSB's Office of Administrative Law Judges in 2009; 187 of these cases were from emergency orders. The Board's judges held 80 hearings and closed 405 cases in 2009.



During 2009, 58 of the judges' decisions were appealed to the NTSB. The Board decided 55 appeals, reversing the judge's decision in one case and remanding one case to the judges for further proceedings. Sixteen of the Board's decisions were appealed to the U.S. Court of Appeals, which rendered 11 decisions in 2009. The Court affirmed the Board in 6 cases, remanded 4 cases to the Board for further proceedings and dismissed 1 case for procedural reasons.

Nine EAJA applications were filed with the NTSB's administrative law judges in 2009, and the judges decided 12 EAJA cases, granting fees in 3 EAJA applications. In 2009, seven of the judges' EAJA decisions were appealed to the full Board. The full Board issued rulings in six EAJA cases, denying all applications.

Key Challenges

- Expect a deluge of emergency cases, requiring expeditious processing, suspending mechanic certificates of mechanics who attended school with deficient training practice.
- Loss of one or more judges to retirement (all four judges are retirement eligible).

Significant Outcomes and Achievements

- The Office of Administrative Law Judges disposed of 77 percent of its caseload in 2009.
- The Office of Administrative Law Judges handled a large volume of emergency cases received in 2009, which by statute requires expedited handling and hearing.

Member Profiles

DEBORAH A. P. HERSMAN
Chairman

Deborah A.P. Hersman was sworn in as the 12th Chairman of the National Transportation Safety Board on July 28, 2009, following her nomination to the post by President Barack Obama and confirmation by the United States Senate. Her 2-year term as Chairman runs until July 2011. She is also serving a second 5-year term as a Board Member, which expires on December 31, 2013.

Chairman Hersman has been a Member of the NTSB since June 21, 2004. Since then, she has chaired a number of public events hosted by the Board, which include the following:

- September 2009—2-day public hearing on an accident in Lubbock, Texas, involving Empire Airlines flight 8284;
- October 2008—2-day public hearing on an accident in Victoria, Texas, involving a motorcoach that did not comply with the Federal Motor Vehicle Safety Standards;
- September 2006—2-day public forum on motorcycle safety;
- July 2006—2-day public hearing investigating a fire on board UPS Airlines flight 1307; and
- June 2005—3-day public hearing on a crash involving a regional jet in Jefferson City, Missouri.

During her tenure at the Board, she has been the Member on the scene of 17 major transportation accidents:

- August 2009 – midair collision involving a sightseeing helicopter and a single-engine plane over the Hudson River that killed all nine persons aboard the two aircraft;
- June 2009 – collision of two Washington Metropolitan Area Transit Authority (WMATA) trains in Washington, D.C. that killed nine people;
- May 2009 – collision of two Massachusetts Bay Transportation Authority light rail passenger trains in Boston, Massachusetts;
- April 2009 – allision of a 22-foot recreational vessel with a barge in the intracoastal waterway near Palm Valley, Florida;
- September 2008 – crash of a Maryland State Police EMS helicopter in Forestville, Maryland;
- September 2008 – crash of a business jet in Columbia, South Carolina;

- August 2008 – crash of a chartered motorcoach in Sherman, Texas, that killed 17 passengers;
- November 2007 – allision of a container ship with the San Francisco Bay Bridge resulting in the release of 53,500 gallons of fuel;
- August 2007 – crash of a chartered floatplane in Ketchikan, Alaska;
- November 2006 – school bus crash in Huntsville, Alabama;
- October 2006 – crash of a private aircraft carrying two persons, including Major League Baseball player Cory Lidle, into an apartment building in New York City;
- August 2006 – crash of a commercial aircraft in Lexington, Kentucky, that killed 49 people aboard;
- July 2005 – head-on collision of two freight trains at Anding, Mississippi;
- April 2005 – collision of a school bus with a trash truck in Arlington, Virginia;
- February 2005 – crash of a chartered aircraft into an airport warehouse at Teterboro, New Jersey;
- January 2005 – freight train collision and hazardous material release in Graniteville, South Carolina;
- November 2004 – collision of two WMATA trains at the Woodley Park Station in Washington, D.C.

Chairman Hersman holds a commercial drivers license with passenger, school bus, and air brake endorsements. She successfully completed a motorcycle basic rider course and holds a motorcycle endorsement. She is a certified Child Passenger Safety Technician. She has also completed the 40-hour HAZWOPER (Hazardous Waste Operations and Emergency Response Standard) training course.

Before joining the Board, Chairman Hersman was a Senior Professional Staff Member of the U.S. Senate Committee on Commerce, Science and Transportation from 1999 to 2004 where she was responsible for a number of transportation issues and earlier served as Staff Director and Senior Legislative Aide to Congressman Bob Wise of West Virginia.

During her time at the Senate, she was a key staff member involved in the passage of the Motor Carrier Safety Improvement Act of 1999, which created a new truck and bus safety administration within the Department of Transportation. She also worked extensively to negotiate the passage of the Pipeline Safety Improvement Act of 2002, the Transportation Equity Act of the 21st Century, the Amtrak Reform and Accountability Act, and numerous transportation safety and security measures.

Chairman Hersman earned Bachelor of Arts degrees in Political Science and International Studies from Virginia Tech in Blacksburg, Virginia, and a Master of Science degree in Conflict Analysis and Resolution from George Mason University in Fairfax, Virginia. She is married and is the mother of three sons.

Member Profiles

CHRISTOPHER A. HART
Vice Chairman

Christopher A. Hart was sworn in as a Member of the National Transportation Safety Board on August 12, 2009, and designated by the President for a 2-year term as Vice Chairman of the Board on August 18.

Member Hart joined the Board after a long career in transportation safety, including a previous term as a Member of the NTSB. Immediately before returning to the Board, Member Hart was Deputy Director for Air Traffic Safety Oversight at the Federal Aviation Administration (FAA). He was previously the FAA Assistant Administrator for the Office of System Safety.

He served as a Member of the NTSB from 1990 to 1993. After leaving the Board, he served as Deputy Administrator of the National Highway Traffic Safety Administration, before moving to the FAA in 1995.

From 1973 until joining the Board in 1990, Member Hart held a series of legal positions, mostly in the private sector. He holds a law degree from Harvard University and Master's and Bachelor's degrees in Aerospace Engineering from Princeton University. He is a member of the District of Columbia Bar and the Lawyer-Pilots Bar Association.

Member Hart is a licensed pilot with commercial, multi-engine, and instrument ratings.

Member Hart's family has a tradition of accomplishment in the field of transportation. His great uncle, James Herman Banning, was the first African-American to receive a pilot's license issued by the U.S. Government, in 1926.

His term expires December 31, 2012.

Member Profiles

ROBERT L. SUMWALT
Member

Robert L. Sumwalt was sworn in as the 37th Member of the National Transportation Safety Board on August 21, 2006, whereupon President Bush designated him as Vice Chairman of the Board for a 2-year term, ending August 2008. His term of office as a Board Member will run until December 31, 2011.

Prior to coming to the Board, Mr. Sumwalt was Manager of Aviation for the SCANA Corporation, a Fortune 500 energy-based company.

Mr. Sumwalt was a pilot for 32 years, including 24 years as an airline pilot with Piedmont Airlines and then US Airways. He logged over 14,000 flight hours and earned type ratings in five aircraft before retiring from the airline in 2005. He has extensive experience as an airline captain, airline check airman, instructor pilot, and air safety representative.

Mr. Sumwalt worked on special assignment to the US Airways Flight Safety Department from 1997 to 2004, where he was involved in the development of numerous airline safety programs. From 2002 to 2004, he served on the US Airways Flight Operations Quality Assurance (FOQA) Monitoring Team.

Mr. Sumwalt served as a member of the Air Line Pilots Association's (ALPA) Accident Investigation Board, and he chaired ALPA's Human Factors and Training Group. He was a co-founder of that organization's Critical Incident Response Program, which provides guidance to airline personnel involved in traumatic events such as accidents.

A trained accident investigator, Mr. Sumwalt participated in several NTSB investigations prior to joining the agency.

From 1991 to 1999, Mr. Sumwalt conducted aviation safety research as a consultant to NASA's Aviation Safety Reporting System, studying various issues, including flight crew performance, improving flight crew monitoring skills, and air carrier de-icing and anti-icing problems.

Mr. Sumwalt co-authored a book on aircraft accidents and has written extensively on aviation safety matters, having published over 85 articles and papers in aviation trade publications. He has broad experience in writing aircraft operations manuals and airline and corporate aviation policy and procedure guidelines. Before joining the Board, he was a regular contributor to *Professional Pilot* magazine.

In 2003, Mr. Sumwalt joined the faculty of the University of Southern California's Aviation Safety and Security Program, where he was the primary human factors instructor.

In recognition of his contributions to the aviation industry, Mr. Sumwalt received the Flight Safety Foundation's Laura Taber Barbour Award in 2003 and Air Line Pilots Association's Air Safety Award in 2005. He is a 2009 inductee into the South Carolina Aviation Hall of Fame.

Since joining the Board, Member Sumwalt served as the Chairman of the Board of Inquiry for the NTSB's June 2009 public hearing for the accident involving US Airways flight 1549, the Airbus A320 that ditched on the Hudson River in January 2009. In February 2009, Member Sumwalt served as Chairman of the Board of Inquiry for the NTSB's public hearing regarding emergency medical services (EMS) helicopters.

Additionally, he has served as the Member on-scene for the following accidents:

- September 2009—Emergency medical services helicopter accident in Georgetown, South Carolina;
- June 2009—Canadian National train derailment at a grade crossing at Rockford, Illinois, which resulted in the explosion and burning of several ethanol tank cars;
- December 2008—accident involving Continental Airlines flight 1404, a Boeing 737-500 that departed a runway during takeoff roll at Denver International Airport and caught fire;
- November 2007—collision between an Amtrak passenger train and a standing Norfolk Southern freight train in Chicago, Illinois;
- November 2007—liquid propane pipeline rupture and explosion in Carmichael, Mississippi;
- July 2007—aviation accident in which a twin-engine Cessna 310R airplane impacted homes in a residential area in Sanford, Florida; and
- October 2006—derailment of a Norfolk Southern train in New Brighton, Pennsylvania.

Mr. Sumwalt also accompanied the NTSB go-team to Lexington, Kentucky, for the on-site investigation of the August 2006 crash of Comair flight 5191.

Mr. Sumwalt is a graduate of the University of South Carolina.

Member Profiles

MARK V. ROSENKER
Acting Chairman

Mark V. Rosenker of Virginia was sworn in as the 11th Chairman of the National Transportation Safety Board on August 11, 2006. His 2-year term as Chairman expired in August 2008; President Bush nominated Mr. Rosenker for a second 2-year term as Chairman and also appointed him Vice Chairman and, as a result, Acting Chairman. Mr. Rosenker served as head of the agency, either as Chairman or Acting Chairman from March 2005 until July 2009.

Beginning January 20, 2001, until the announcement of his nomination to the Board, Mr. Rosenker served as Deputy Assistant to the President and Director of the White House Military Office. In this capacity, he had responsibility for policies, personnel, and plans that involve Department of Defense assets in direct support of the President.

Prior to his White House appointment, Mr. Rosenker was Managing Director of the Washington, D.C., office for the United Network for Organ Sharing (UNOS), overseeing the development, implementation and management of a national public information program dealing with all facets of organ transplantation in the United States. Before joining UNOS, Mr. Rosenker served 23 years as Vice President, Public Affairs for the Electronic Industries Alliance.

Mr. Rosenker's interest and experience in transportation safety dates back more than three decades to his time at a major national public affairs organization. His clients there included the American Safety Belt Council, the Motorcycle Safety Foundation, and the Safety Helmet Council of America. He later served as Director of Communications for the American Moped/Motorized Bicycle Association.

Mr. Rosenker's professional experience also includes service in the federal government at the Department of Interior, the Federal Trade Commission and the Commodity Futures Trading Commission. In 1990, he was appointed by President Bush as a member of the American Battle Monuments Commission (ABMC). After serving 4 years, Mr. Rosenker received the Commission's highest honor, the ABMC Meritorious Service Medal.

A retired Major General in the Air Force Reserve, General Rosenker entered the Air Force in 1969 through the University of Maryland ROTC program. He is a graduate of the Air Command and Staff College and the Air War College.

During his 37 1/2 -year Air Force career, General Rosenker received a number of awards and decorations, including the Air Force Distinguished Service Medal with One Oak Leaf Cluster and the Legion of Merit.

For his leadership role in recreational boating issues, the National Safe Boating Council presented Mr. Rosenker its highest honor, the Confluence Award, twice. This is traditionally given only to Members of Congress, and Mr. Rosenker is one of the few representatives of the Executive Branch to be so honored. In addition, in September 2007, the National Association of State Boating Law Administrators (NASBLA) presented Chairman Rosenker with the NASBLA Award for his years of promoting boating safety.

Mr. Rosenker was the Board Member on scene for the NTSB's investigations into the April 2004 derailment of Amtrak's City of New Orleans near Flora, Mississippi; the November 2004 crash of a charter jet aircraft in Houston, Texas (the plane was on its way to pick up former President George H.W. Bush for a flight to Latin America); the September 2005 derailment of a Metra commuter train in Chicago; the October 2005 capsizing of the passenger vessel *Ethan Allen* in Lake George, New York, which claimed 20 lives; the November 2005 grade crossing collision involving a Metra commuter train in Chicago; the December 2005 crash of a seaplane in Miami, Florida, that killed all 20 persons aboard; the November 2006 accident in Alexandria, Virginia, in which two track inspectors were struck by a transit train and killed; the January 2007 derailment of a CSX freight train in Shepherdsville, Kentucky, that resulted in a hazardous materials spill and fire; the August 2007 collapse of the I-35W bridge in Minneapolis, Minnesota, that killed 13 motorists who were crossing the bridge at the time of the collapse; the June 2008 midair collision of two emergency medical services helicopters in Flagstaff, Arizona; the investigation of the crash of the small aircraft piloted by adventurer Steve Fossett, after the wreckage was found in October 2008, more than a year after the aircraft was reported missing; and the March 2009 crash of a single-engine plane in Butte, Montana, that killed all 14 persons aboard. He also was part of the NTSB's Go Team for the June 2003 capsizing of the charter fishing vessel *Taki-Tooo*, near Garibaldi, Oregon, which took the lives of 11 of the 19 people aboard.

In April 2008, Mr. Rosenker chaired the NTSB's public hearing into the accident involving the containership M/V *Cosco Busan,* which struck the fendering system of the San Francisco-Oakland Bay Bridge.

Mr. Rosenker resigned from the Board on July 21, 2009.

Member Profiles

KATHRYN O'LEARY HIGGINS
Member

Kathryn O'Leary Higgins was sworn in as the 36th Member of the National Transportation Safety Board on January 3, 2006.

During her tenure with the NTSB, Member Higgins served as the Board Member on scene for the Safety Board's investigations into the May 2006 crash in Washington, D.C., of a MedSTAR medevac helicopter transporting a patient to the Washington Hospital Center; the July 2006 derailment of the last car of an 8-car Chicago Transit Authority rapid-transit train that created an electrical arcing event requiring evacuation of the 1,000 passengers riding the train during rush hour in downtown Chicago; the January 2007 derailment of a Metro transit car carrying more than 100 passengers at the beginning of rush hour in Washington, D.C.; the March 2007 accident involving a motor coach that went off a highway overpass and fell onto I-75 early in the morning in Atlanta, Georgia, killing the bus driver, the driver's wife, and 5 baseball players, and injuring 29 others, from a small college in Ohio; the May 2007 grounding of the cruise ship *Empress of the North* near Juneau, Alaska; the May 2008 crash of two MBTA commuter trains in Newton, Massachusetts, that killed the operator of one train and injured several passengers; the August 2008 crash of a U.S. Forest Service helicopter near Redding, California, that killed the pilot and nine firefighters; the September 2008 collision in Chatsworth, California, of a Metrolink commuter train and a Union Pacific freight train that killed 24 passengers and the Metrolink engineer, and injured 102 others; the January 2009 ditching of US Airways flight 1549 into New York's Hudson River with no fatalities and 5 serious injuries.

Member Higgins also served as the Chairman of a public hearing on the September 2005 bus fire accident near Wilmer, Texas, that occurred during the emergency evacuation for Hurricane Rita, in which 23 of the 44 passengers were killed. She also chaired a public forum on "The Safety of Unmanned Aircraft Systems" in June 2008, and chaired a March 2009 public hearing on the fatal collision of the Metrolink commuter train and the UP freight train in Chatsworth, California.

Ms. Higgins brings 36 years of experience in the public and private sectors to her appointment. Before her term at the NTSB, she was President and CEO of TATC Consulting and served as Vice President for Public Policy at the National Trust for Historic Preservation from May 1999 to January 2004.

Member Higgins served as Deputy Secretary of the U.S. Department of Labor (July 1997-May 1999), Acting Chair of the National Endowment for the Arts, and Vice Chair of the Presidential Commission on U.S. Coast Guard Roles and Missions.

Ms. Higgins served in the White House (February 1995 – July 1997) as Assistant to the President and Secretary to the Cabinet. In that capacity, she worked closely with the NTSB, Department of Transportation, Federal Aviation Administration (FAA), and U.S. Coast Guard on a number of matters, including the 1996 accidents involving ValuJet flight 592 and TWA flight 800, formulation and implementation of hazardous materials regulations, increasing inspector staffing, FAA reauthorization, and creation of the NTSB Office of Family Assistance. She was awarded distinguished service medals by the FAA and Coast Guard for her work.

Ms. Higgins served as Chief of Staff to the Secretary of Labor (January 1993-February 1995), Chief of Staff to Congressman Sander Levin (January 1986 – January 1993), and Senior Legislative Associate and Minority Staff Director with the U.S. Senate Labor and Human Resources Committee (January 1981 –January 1986).

Member Higgins was with the White House Domestic Policy Council, serving as Assistant Director for Employment Policy (May 1978 –January 1981). She began her career in 1969 as a Manpower Specialist with the Employment and Training Administration, U.S. Department of Labor.

Ms. Higgins came to Washington from Yankton, South Dakota, and earned a Bachelor of Science degree from the University of Nebraska. She was married to the late William J. Higgins and is the mother of two sons, Liam and Kevan.

Ms. Higgins resigned from the Board on August 3, 2009.

Member Profiles

STEVEN R. CHEALANDER
Member

Steven R. Chealander was sworn in as the 38th Member of the National Transportation Safety Board on January 3, 2007.

Mr. Chealander brought a wealth of both civilian and military aviation experience to the NTSB. Prior to joining the Board, he was with American Airlines, serving since 1991 as a pilot and captain qualified on the DC-10, B-737, MD-80, and F-100 aircraft, and as a chief pilot in Los Angeles. At American, he was also a flight safety manager, performing safety and compliance audits and participating in investigations, and was most recently the Manager of Flight Operations Efficiency.

From 1964 to 1991, Mr. Chealander served in the U.S. Air Force, with tours of duty in Vietnam and Spain. An F-4 pilot and instructor pilot, and then a USAF aggressor pilot, Mr. Chealander was selected in 1981 to be a member of the USAF Air Demonstration Squadron, the Thunderbirds. He flew with the team until 1985, when he was assigned as a staff officer at Tactical Air Command Headquarters at Langley AFB, Virginia.

In 1986, Mr. Chealander was selected as Military Aide to President Ronald Reagan. In this capacity, he performed a variety of ceremonial and emergency preparedness duties, including custody of the President's emergency briefcase, "the football."

Subsequently, Mr. Chealander commanded an F-5 tactical fighter squadron at Williams AFB, Arizona (1988-89), an F-16 squadron at Luke AFB, Arizona (1989-91), and then was appointed Assistant Deputy Commander for Operations for the F-16 tactical fighter wing at Luke AFB. He retired from the Air Force in 1991 with the rank of Lt. Colonel.

Mr. Chealander received a B.S. degree in Business Administration from the University of Southern California and did graduate studies at the University of Utah. He is married and the father of two daughters.

Mr. Chealander resigned from the Board on February 28, 2009.

APPENDIX A

Accidents Required to be Investigated Under Section 1131 But Not Investigated

ACCIDENTS REQUIRED TO BE INVESTIGATED UNDER SECTION 1131 BUT NOT INVESTIGATED

Mode	ACCIDENT DATE	ACCIDENT LOCATION	ACCIDENT CIRCUMSTANCES	REASON NOT INVESTIGATED
RR--Freight	8/7/09	Alma, GA	CSX collision. $2.7M. Train went by stop signal.	Limited Board resources
RR--Freight	8/8/09	Concord, IL	BNSF derailment. $1.23M. Rail joint bar defect.	Limited Board resources
RR--Freight	8/15/09	Gilead, ME	SLR derailment. $1.1M. Rail fracture.	Limited Board resources
RR--Freight	8/16/09	Beatrice, NE	BNSF derailment. $1.04M. Undesired emergency brake application.	Limited Board resources
RR--Freight	8/22/09	Algoa, TX	UP derailment. $1.56M. Undetermined cause.	Limited Board resources
RR--Freight	9/13/09	Casselton, NE	BNSF derailment. $1.16M. Wide track gauge.	Limited Board resources
RR--Freight	9/20/09	Bill, WY	BNSF derailment. $2.5M. Broken axle.	Limited Board resources
RR--Freight	9/25/09	Nara Visa, NM	UP deraiment. $1.3M. Broken rail.	Limited Board resources
RR--Freight	10/7/09	Jackson, KY	CSX derailment. $1.41M. Broken rail.	Limited Board resources
RR--Freight	10/7/09	Dotsero, CO	UP derailment. $2.02M. Undesired emergency brake application.	Limited Board resources
RR--Freight	10/9/09	Cleburne, TX	BNSF derailment. $3.13M. Undesired emergency brake application.	Limited Board resources
RR--Freight	10/11/09	Robinson, IL	INRD derailment. $1.72M. Broken rail.	Limited Board resources
RR--Freight	10/14/09	Philip, SD	CP derailment. $1.03M. Undetermined cause.	Limited Board resources
RR--Freight	10/16/09	Overton, NE	UP derailment. $2.96M. Broken rail weld.	Limited Board resources
RR--Freight	10/25/09	Valmy, NV	UP derailment. $2.43M. Defective switch rod.	Limited Board resources
RR--Freight	10/29/09	Atoka, OK	UP derailment. $1.39M. Rough track.	Limited Board resources
RR--Freight	11/1/09	Fairbury, NE	UP derailment. $2.14M. Defective track.	Limited Board resources
RR--Freight	11/1/09	Northbrook, IL	CP derailment. $2.16M. Undetermined cause.	Limited Board resources
RR--Freight	11/2/09	Council Bluffs, IA	UP derailment. $1.07M. Combination of cross level track and train speed.	Limited Board resources
RR--Freight	11/3/09	Kite, KY	CSX derailment. $1.66M. Broken rail.	Limited Board resources
RR--Freight	11/5/09	Marlin, TX	UP derailment. $1.06M. Train struck loaded tractor trailer at highway-rail grade crossing.	Limited Board resources
RR--Freight	11/23/09	Houston, TX	UP derailment. $1.46M. Rail car wheel lifted off rail due to another rail laying in close proximity to track.	Limited Board resources
RR--Freight	12/1/09	Richmond, VA	CSX derailment. $1M. Broken rail.	Limited Board resources
RR--Freight	12/2/09	Hamilton, PA	NS derailment. $1.48M. Roller bearing failure.	Limited Board resources
RR--Freight	12/9/09	Kelker, CO	BNSF derailment. $1.04M. Track appliance defect.	Limited Board resources
RR--Freight	12/10/09	Eagle Pass, TX	UP derailment. $1.64M. Broken rail.	Limited Board resources
RR--Freight	12/13/09	Northport, NE	BNSF derailment. $1.33M.	Limited Board resources

ACCIDENTS REQUIRED TO BE INVESTIGATED UNDER SECTION 1131 BUT NOT INVESTIGATED

Mode	ACCIDENT DATE	ACCIDENT LOCATION	ACCIDENT CIRCUMSTANCES	REASON NOT INVESTIGATED
AVIATION			***None to report***	
HIGHWAY			***None to report***	
MARINE			***None to report***	
PIPELINE			***None to report***	
RAILROAD		**Accidents involving Freight Trains**		
RR--Freight	1/1/09	Manzanola, CO	BNSF derailment, $3.04M. Wheel bearing failure.	Limited Board resources
RR--Freight	1/2/09	Bridgeport, NE	UP derailment, $1.08M. Broken insulated rail joint.	Limited Board resources
RR--Freight	1/12/09	Earlville, IL	BNSF derailment, $1.23M. Undesired emergency brake application.	Limited Board resources
RR--Freight	1/12/09	Defiance, OH	CSX derailment, $1.38M. Wide track guage.	Limited Board resources
RR--Freight	1/16/09	Buffalo Grove, IL	CN derailment, $1.24M. Broken rail car wheel.	Limited Board resources
RR--Freight	1/16/09	Littleton, CO	BNSF derailment, $1.89M. 17 cars derailed.	Limited Board resources
RR--Freight	2/16/09	Superior, MT	MRL derailment, $1.47M. Undesired emergency brake application.	Limited Board resources
RR--Freight	3/19/09	Lyons, ND	BNSF derailment, $1.44M. Broken rail car wheel.	Limited Board resources
RR--Freight	4/19/09	Moscow, IA	IAIS derailment, $1.05M. Burned off journal.	Limited Board resources
RR--Freight	4/23/09	Oakwood, TX	UP derailment. $4.66M. Third locomotive derailed on bridge due to bridge fire.	Limited Board resources
RR--Freight	5/9/09	Palm Coast, FL	FEC derailment. $1.62M. Buckled track.	Limited Board resources
RR--Freight	5/12/09	Washington, MO	UP derailment. $2.99M. Broken rail.	Limited Board resources
RR--Freight	5/17/09	Limon, CO	UP derailment. $1.29M. Undesired emergency brake application.	Limited Board resources
RR--Freight	5/29/09	Haines, OR	UP derailment. $1.31M. Undesired emergency brake application.	Limited Board resources
RR--Freight	5/30/09	Ottumwa, IA	BNSF derailment. $1.05M. Undetermined cause.	Limited Board resources
RR--Freight	6/3/09	Maxwell, NE	UP derailment. $1.07M. Broken rail.	Limited Board resources
RR--Freight	6/14/09	Bridgeport, NE	UP derailment. $1.04M. Track roadbed settled.	Limited Board resources
RR--Freight	6/15/09	Schulenburg, TX	UP derailment. $2.04M. Irregular track alignment.	Limited Board resources
RR--Freight	6/23/09	Fort Scott, KS	BNSF derailment. $1.44M. Undesired emergency brake application.	Limited Board resources
RR--Freight	6/23/09	Brighton, TN	CN derailment, $1.14M. Thermal misalignment in rail.	Limited Board resources
RR--Freight	6/29/09	Sleeper, MO	BNSF collision. $1.29M. Train went by stop signal.	Limited Board resources
RR--Freight	7/1/09	Union City, GA	CSX derailment. $1.14M. Undesired emergency brake application.	Limited Board resources
RR--Freight	7/25/09	Morris, KS	BNSF derailment. $1.05M. Undetermined cause.	Limited Board resources

ACCIDENTS REQUIRED TO BE INVESTIGATED UNDER SECTION 1131 BUT NOT INVESTIGATED

Mode	ACCIDENT DATE	ACCIDENT LOCATION	ACCIDENT CIRCUMSTANCES	REASON NOT INVESTIGATED
RR--Freight	12/17/09	Neilson, IL	BNSF derailment. $1.7M. Broken rail.	Limited Board resources
RR--Pass.		**Accidents involving Passenger Trains**		
RR--Pass.	1/1/09	Bridgeport, CT	MNCW sustained damage to pantagraph unit.	Limited Board resources
RR--Pass.	1/2/09	Cold Spring, NY	MNCW derailment at low speed due to broken wheel.	Limited Board resources
RR--Pass.	1/7/09	Greensboro, NC	Amtrak struck tree, damaging front end of locomotive.	Limited Board resources
RR--Pass.	1/10/09	Kearny, NJ	NJTR derailed locomotive due to improperly lined switch.	Limited Board resources
RR--Pass.	1/10/09	Glen Rock, NJ	NJTR struck debris, causing damage to locomotive, cab signal apparatus, and brake piping.	Limited Board resources
RR--Pass.	1/13/09	Chicago, IL	Amtrak derailment at low speed in crossover at interlocking.	Limited Board resources
RR--Pass.	1/15/09	Carlinville, IL	Amtrak locomotive derailed after striking garbage truck at crossing.	Limited Board resources
RR--Pass.	1/17/09	Princeton Junction, NJ	NJTR sustained damage to locomotive from catenary wire.	Limited Board resources
RR--Pass.	1/19/09	Sea Girt, NJ	NJTR struck motor vehicle at highway-rail grade crossing.	Limited Board resources
RR--Pass.	1/19/09	Morrisville, PA	NJTR operated train over derail at low speed, causing derailment.	Limited Board resources
RR--Pass.	1/22/09	Corcoran, CA	Amtrak struck tractor-trailer at highway-rail grade crossing.	Limited Board resources
RR--Pass.	1/27/09	Richton Park, IL	NIRC derailed locomotive due to improperly lined switch.	Limited Board resources
RR--Pass.	1/27/09	Philadelphia, PA	SEPTA train struck at low speed.	Limited Board resources
RR--Pass.	1/28/09	Crestwood, NY	MNCW fire due to rail shoe leads grounding third rail.	Limited Board resources
RR--Pass.	2/3/09	Providence, RI	Amtrak sustained damage to pantagraph unit.	Limited Board resources
RR--Pass.	2/3/09	Hollis, NY	LIRR fire and smoke due to high resistance arcing.	Limited Board resources
RR--Pass.	2/4/09	East Rutherford, NJ	NJTR struck by a motor vehicle at highway-rail grade crossing.	Limited Board resources
RR--Pass.	2/4/09	Harrisburg, NC	Amtrak struck tractor-trailer at highway-rail grade crossing.	Limited Board resources
RR--Pass.	2/5/09	New York, NY	NJTR sustained damage to pantagraph unit.	Limited Board resources
RR--Pass.	2/7/09	Berkeley Heights, NJ	NJTR struck motor vehicle at highway-rail grade crossing.	Limited Board resources
RR--Pass.	2/8/09	Attleboro, NJ	Amtrak sustained damage to pantagraph unit.	Limited Board resources
RR--Pass.	2/9/09	Morrisville, PA	NJTR derailment due to point protector.	Limited Board resources
RR--Pass.	2/12/09	Roslyn, NY	LIRR struck utility pole fouling trackage.	Limited Board resources
RR--Pass.	2/13/09	Boston, MA	Amtrak sustained damage to pantagraph unit.	Limited Board resources

ACCIDENTS REQUIRED TO BE INVESTIGATED UNDER SECTION 1131 BUT NOT INVESTIGATED

Mode	ACCIDENT DATE	ACCIDENT LOCATION	ACCIDENT CIRCUMSTANCES	REASON NOT INVESTIGATED
RR--Pass.	2/13/09	Syosset, NY	LIRR struck motor vehicle at highway-rail grade crossing.	Limited Board resources
RR--Pass.	2/13/09	Elmwood Park, IL	NJTR struck motor vehicle at highway-rail grade crossing.	Limited Board resources
RR--Pass.	2/14/09	New London, CT	Amtrak sustained damage to pantagraph unit.	Limited Board resources
RR--Pass.	2/19/09	Darien, CT	MNCW sustained damage to pantagraph unit.	Limited Board resources
RR--Pass.	2/20/09	Savannah, GA	Amtrak struck dump truck at highway-rail grade crossing.	Limited Board resources
RR--Pass.	2/20/09	Somerville, MA	MBTA derailment due to storage box lodged under passenger coach.	Limited Board resources
RR--Pass.	2/24/09	Hammond, IN	Amtrak derailment due to broken rail spikes in curve.	Limited Board resources
RR--Pass.	3/1/09	Palm Springs, CA	Amtrak derailment at low speed due to defective switch.	Limited Board resources
RR--Pass.	3/2/09	New Canaan, CT	MNCW struck bumping block at end of track due to failing to adhere to restricted speed rule.	Limited Board resources
RR--Pass.	3/8/09	Woronoco, MA	Amtrak derailed 1 locomotive and 4 cars.	Limited Board resources
RR--Pass.	3/13/09	Gainesville, TX	Amtrak struck tractor-trailer at highway-rail grade crossing.	Limited Board resources
RR--Pass.	3/16/09	Rahway, NJ	Amtrak sustained damage to pantagraph unit.	Limited Board resources
RR--Pass.	3/17/09	Odenton, MD	MARC sustained damage to pantagraph unit.	Limited Board resources
RR--Pass.	3/17/09	Chelsea, MI	Amtrak struck automobile at highway-rail grade crossing.	Limited Board resources
RR--Pass.	3/19/09	Mamaroneck, NY	MNCW fire and smoke due to defective traction motor.	Limited Board resources
RR--Pass.	3/20/09	Charlotte, NC	Amtrak struck tractor-trailer at highway-rail grade crossing.	Limited Board resources
RR--Pass.	3/22/09	Bridgeport, CT	MNCW sustained damage to pantagraph unit.	Limited Board resources
RR--Pass.	3/22/09	Harrison, NY	MNCW fire and smoke due to defective traction motor.	Limited Board resources
RR--Pass.	3/25/09	Boston, MA	Amtrak sustained damage to pantagraph unit.	Limited Board resources
RR--Pass.	3/26/09	Wayne, PA	SEPTA train struck SEPTA maintenance truck.	Limited Board resources
RR--Pass.	3/30/09	Great Notch, NJ	NJTR sustained damage to pantagraph unit.	Limited Board resources
RR--Pass.	4/2/09	McComb, MS	Amtrak derailment due to tree in trackage.	Limited Board resources
RR--Pass.	4/7/09	San Francisco, CA	Amtrak struck automobile at highway-rail grade crossing.	Limited Board resources
RR--Pass.	4/7/09	Belchertown, MA	Amtrak derailed rear locomotive due to broken rail.	Limited Board resources
RR--Pass.	4/10/09	Hoboken, NJ	NJTR sustained damage to pantagraph unit.	Limited Board resources
RR--Pass.	4/16/09	Tribes Hill, NY	Amtrak derailment at low speed.	Limited Board resources

ACCIDENTS REQUIRED TO BE INVESTIGATED UNDER SECTION 1131 BUT NOT INVESTIGATED

Mode	ACCIDENT DATE	ACCIDENT LOCATION	ACCIDENT CIRCUMSTANCES	REASON NOT INVESTIGATED
RR--Pass.	4/22/09	Salt Lake City, UT	UFRC struck automobile stuck on tracks.	Limited Board resources
RR--Pass.	4/24/09	Matawan, NJ	NJTR sustained damage to pantagraph unit.	Limited Board resources
RR--Pass.	4/25/09	Madison, NJ	NJTR sustained damage to pantagraph unit.	Limited Board resources
RR--Pass.	5/2/09	Central Islip, NY	LIRR 10th passenger coach struck by automobile at highway-rail grade crossing.	Limited Board resources
RR--Pass.	5/3/09	Richmond, CA	Amtrak struck automobile at highway-rail grade crossing.	Limited Board resources
RR--Pass.	5/12/09	Greenwich, CT	MNCW sustained damage to pantagraph unit.	Limited Board resources
RR--Pass.	5/16/09	Wilmington, DE	Amtrak sustained damage to pantagraph unit.	Limited Board resources
RR--Pass.	5/18/09	San Pablo, CA	Amtrak struck automobile at highway-rail grade crossing.	Limited Board resources
RR--Pass.	5/19/09	King City, CA	Amtrak struck tractor-trailer at highway-rail grade crossing.	Limited Board resources
RR--Pass.	5/29/09	Rouses Point, NY	Amtrak derailed three cars at low speed due to soft track bed.	Limited Board resources
RR--Pass.	5/30/09	Hoboken, NJ	NJTR sustained damage to pantagraph unit.	Limited Board resources
RR--Pass.	5/31/09	Bowie, MD	Amtrak sustained damage to pantagraph unit.	Limited Board resources
RR--Pass.	5/31/09	Cade, LA	Amtrak struck tractor-trailer at highway-rail grade crossing.	Limited Board resources
RR--Pass.	6/1/09	Secaucus, NJ	NJTR sustained damage to pantagraph unit.	Limited Board resources
RR--Pass.	6/3/09	Oakland, CA	Amtrak derailment in yard due to unauthorized derail activation.	Limited Board resources
RR--Pass.	6/3/09	Lancaster, PA	Amtrak sustained damage to pantagraph unit.	Limited Board resources
RR--Pass.	6/12/09	Washington, DC	Amtrak struck bumping post in station due to unauthorized speed.	Limited Board resources
RR--Pass.	6/12/09	Henry, NY	Amtrak struck rock slide.	Limited Board resources
RR--Pass.	6/14/09	Pico-rivera, CA	Amtrak struck BNSF on-track vehicle.	Limited Board resources
RR--Pass.	6/15/09	Fort Garland, CO	SLRG struck tractor-trailer at highway-rail grade crossing.	Limited Board resources
RR--Pass.	6/17/09	French Camp, CA	ACEX struck truck at highway-rail grade crossing.	Limited Board resources
RR--Pass.	6/19/09	Chicago, IL	NIRC derailed locomotive due to miscommunication about position of derailing device.	Limited Board resources
RR--Pass.	6/22/09	New York, NY	Amtrak locomotive fire due to defective axle.	Limited Board resources
RR--Pass.	6/24/09	Baltimore, MD	Amtrak sustained damage to pantagraph unit.	Limited Board resources
RR--Pass.	6/24/09	Midvale, UT	UTAX fire due to loose wiring connection.	Limited Board resources
RR--Pass.	6/26/09	Norwalk, CT	MNCW sustained damage to pantagraph unit.	Limited Board resources

ACCIDENTS REQUIRED TO BE INVESTIGATED UNDER SECTION 1131 BUT NOT INVESTIGATED

Mode	ACCIDENT DATE	ACCIDENT LOCATION	ACCIDENT CIRCUMSTANCES	REASON NOT INVESTIGATED
RR--Pass.	7/2/09	Niantic, CT	Amtrak sustained damage to pantagraph unit.	Limited Board resources
RR--Pass.	7/2/09	Huntington, NY	LIRR derailment due to obstructed flangeway in highway-rail grade crossing.	Limited Board resources
RR--Pass.	7/3/09	Ventura, CA	Amtrak struck automobile at highway-rail grade crossing.	Limited Board resources
RR--Pass.	7/6/09	Baltimore, MD	MARC sustained damage to pantagraph unit.	Limited Board resources
RR--Pass.	7/7/09	Woodcliff Lake, NY	NJTR struck a tree, damaging locomotive.	Limited Board resources
RR--Pass.	7/9/09	Denver, CO	Amtrak derailed two locomotives at low speed through a crossover switch.	Limited Board resources
RR--Pass.	7/13/09	Ottawa, IL	Amtrak struck automobile at highway-rail grade crossing.	Limited Board resources
RR--Pass.	7/14/09	Pittsburg, CA	Amtrak struck truck at highway-rail grade crossing.	Limited Board resources
RR--Pass.	7/14/09	Goshen, IN	Amtrak struck truck at highway-rail grade crossing.	Limited Board resources
RR--Pass.	7/19/09	Philadelphia, PA	SEPTA sustained damage to pantagraph unit.	Limited Board resources
RR--Pass.	7/21/09	Hialeah, FL	Amtrak derailed locomotive in yard while operating over switch.	Limited Board resources
RR--Pass.	7/24/09	Long Island City, NY	Amtrak sustained damage to pantagraph unit.	Limited Board resources
RR--Pass.	7/24/09	Woodside, NY	LIRR collision at low speed in interlocking due to passing stop signal.	Limited Board resources
RR--Pass.	7/27/09	Harrison, NY	MNCW sustained damage to pantagraph unit.	Limited Board resources
RR--Pass.	7/29/09	Los Angeles, CA	SCAX struck automobile at highway-rail grade crossing.	Limited Board resources
RR--Pass.	8/5/09	Atoka, TN	Amtrak struck tree, damaging front end of locomotive.	Limited Board resources
RR--Pass.	8/8/09	Deer Park, NY	LIRR struck automobile at highway-rail grade crossing.	Limited Board resources
RR--Pass.	8/10/09	Stratford, CT	MNCW sustained damage to pantagraph unit.	Limited Board resources
RR--Pass.	8/10/09	Kearny, NJ	NJTR sustained damage to pantagraph unit.	Limited Board resources
RR--Pass.	8/11/09	Salinas, CA	Amtrak struck tractor-trailer at highway-rail grade crossing.	Limited Board resources
RR--Pass.	8/14/09	Aberdeen, MD	Amtrak sustained damage to pantagraph unit.	Limited Board resources
RR--Pass.	8/14/09	Detroit, MI	Amtrak derailment at low speed due to defective track.	Limited Board resources
RR--Pass.	8/16/09	Attleboro, MA	Amtrak sustained damage to pantagraph unit.	Limited Board resources
RR--Pass.	8/18/09	Melrose, NY	MNCW struck tree, causing damage to locomotive.	Limited Board resources
RR--Pass.	8/18/09	Albuquerque, NM	NMRX struck by automible at highway-rail grade crossing.	Limited Board resources

ACCIDENTS REQUIRED TO BE INVESTIGATED UNDER SECTION 1131 BUT NOT INVESTIGATED

Mode	ACCIDENT DATE	ACCIDENT LOCATION	ACCIDENT CIRCUMSTANCES	REASON NOT INVESTIGATED
RR--Pass.	8/19/09	Philadelphia, PA	SEPTA locomotive fire.	Limited Board resources
RR--Pass.	8/21/09	Brattleboro, VT	Amtrak struck tree, damaging front end of locomotive.	Limited Board resources
RR--Pass.	8/27/09	Oxnard, CA	SCAX struck automobile at highway-rail grade crossing.	Limited Board resources
RR--Pass.	8/28/09	Jackson, MS	Amtrak struck automobile at highway-rail grade crossing.	Limited Board resources
RR--Pass.	8/28/09	Matawan, NJ	NJTR sustained damage to pantagraph unit.	Limited Board resources
RR--Pass.	8/31/09	Battle Creek, MI	Amtrack struck by automobile at highway-rail grade crossing.	Limited Board resources
RR--Pass.	8/31/09	Marcus Hook, PA	SEPTA smoke in passenger car due to defective traction motor.	Limited Board resources
RR--Pass.	9/9/09	Philadelphia, PA	SEPTA smoke in passenger car due to main transformer failure.	Limited Board resources
RR--Pass.	9/14/09	Stamford, CT	MNCW sustained damage to pantagraph unit.	Limited Board resources
RR--Pass.	9/14/09	Lithia Springs, GA	Amtrak struck automobile at highway-rail grade crossing.	Limited Board resources
RR--Pass.	9/17/09	Auburn, IL	Amtrak struck dump truck at highway-rail grade crossing.	Limited Board resources
RR--Pass.	9/18/09	Savannah, GA	Amtrak fire on train due to trash bag in restroom.	Limited Board resources
RR--Pass.	9/20/09	Providence, RI	Amtrak sustained damage to pantagraph unit.	Limited Board resources
RR--Pass.	10/5/09	Kingston, RI	Amtrak sustained damage to pantagraph unit.	Limited Board resources
RR--Pass.	10/9/09	Carbondale, IL	Amtrak struck by automobile at highway-rail grade crossing.	Limited Board resources
RR--Pass.	10/9/09	Saint Albans, VT	Amtrak derailed locomotive due to wide track guage.	Limited Board resources
RR--Pass.	10/9/09	San Diego, CA	SDNX struck automobile at highway-rail grade crossing.	Limited Board resources
RR--Pass.	10/15/09	West Palm Beach, FL	Amtrak struck truck at highway-rail grade crossing.	Limited Board resources
RR--Pass.	10/16/09	Boston, MA	Amtrak sustained damage to pantagraph unit.	Limited Board resources
RR--Pass.	10/17/09	New Haven, VT	VTR struck tractor at highway-rail grade crossing.	Limited Board resources
RR--Pass.	10/23/09	Fayetteville, NC	Amtrak struck automobile at highway-rail grade crossing.	Limited Board resources
RR--Pass.	10/29/09	New Carrolton, MD	Amtrak sustained damage to pantagraph unit.	Limited Board resources
RR--Pass.	11/4/09	Philadelphia, PA	SEPTA train fire.	Limited Board resources
RR--Pass.	11/4/09	Norwalk, CA	SCAX struck truck at highway-rail grade crossing.	Limited Board resources
RR--Pass.	11/5/09	Spokane, WA	Amtrak locomotive derailed due to gapped switch point.	Limited Board resources
RR--Pass.	11/11/09	Sawyer, MI	Amtrak derailed after striking wheel set fouling main track.	Limited Board resources
RR--Pass.	11/12/09	Bernardsville, NJ	NJTR sustained damage to pantagraph unit.	Limited Board resources

ACCIDENTS REQUIRED TO BE INVESTIGATED UNDER SECTION 1131 BUT NOT INVESTIGATED

Mode	ACCIDENT DATE	ACCIDENT LOCATION	ACCIDENT CIRCUMSTANCES	REASON NOT INVESTIGATED
RR--Pass.	11/14/09	Tarrytown, NY	Amtrak baggage car struck wayside signals.	Limited Board resources
RR--Pass.	11/19/09	Lincoln, NE	Amtrak struck automobile at highway-rail grade crossing.	Limited Board resources
RR--Pass.	11/19/09	Pompano Beach, FL	SFRV struck automobile at highway-rail grade crossing.	Limited Board resources
RR--Pass.	11/20/09	Browning, MT	Amtrak struck automobile at highway-rail grade crossing.	Limited Board resources
RR--Pass.	11/24/09	Kearny, NJ	NJTR sustained damage to pantagraph unit.	Limited Board resources
RR--Pass.	11/25/09	Essex, MT	Amtrak struck large boulder in trackage.	Limited Board resources
RR--Pass.	11/28/09	New Haven, CT	Amtrak struck tree, damaging front end of locomotive.	Limited Board resources
RR--Pass.	12/1/09	Bucks, PA	SEPTA sustained damage to pantagraph unit.	Limited Board resources
RR--Pass.	12/4/09	Aberdeen, MD	Amtrak struck tree, damaging front end of locomotive.	Limited Board resources
RR--Pass.	12/6/09	Newark, NJ	NJTR sustained damage to pantagraph unit.	Limited Board resources
RR--Pass.	12/8/09	Rialto, CA	SCAX struck van at highway-rail grade crossing.	Limited Board resources
RR--Pass.	12/14/09	Smokey Junction, TN	New River Railway struck a standing hi-rail truck.	Limited Board resources
RR--Pass.	12/16/09	Washington, DC	Amtrak sustained damage to pantagraph unit.	Limited Board resources
RR--Pass.	12/17/09	Stockton, CA	ACEX struck loaded trailer on UP rail car.	Limited Board resources
RR--Pass.	12/18/09	Rahway, NJ	NJTR sustained damage to pantagraph unit.	Limited Board resources
RR--Pass.	12/21/09	San Mateo, CA	Caltrain struck automobile at highway-rail grade crossing.	Limited Board resources
RR--Pass.	12/21/09	Kearny, NJ	NJTR struck truck that was fouling track.	Limited Board resources
RR--Pass.	12/21/09	Pennsauken, NJ	SNJX struck front end loader, resulting in derailment.	Limited Board resources
RR--Pass.	12/24/09	Fresno, CA	Amtrak struck tractor trailer at highway-rail grade crossing.	Limited Board resources
RR--Pass.	12/26/09	Bakersfield, CA	Amtrak struck tractor trailer at highway-rail grade crossing.	Limited Board resources
RR--Pass.	12/27/09	Delawanna, NJ	NJTR struck automobile fouling track.	Limited Board resources
RR--Pass.	12/29/09	New York, NY	Amtrak sustained damage to pantagraph unit.	Limited Board resources
RR--Pass.	12/29/09	Westport, CT	MNCW sustained damage to pantagraph unit.	Limited Board resources
RR--Pass.	12/29/09	Mount Vernon, NY	MNCW sustained damage to pantagraph unit.	Limited Board resources
RR--Pass.	12/29/09	Larchmont, NY	MNCW sustained damage to pantagraph unit.	Limited Board resources
RR--Pass.	12/31/09	Gladstone, NY	NJTR derailed car due to improperly thrown switch.	Limited Board resources
RR--Transit		**Accidents involving Transit Trains**		

ACCIDENTS REQUIRED TO BE INVESTIGATED UNDER SECTION 1131 BUT NOT INVESTIGATED

Mode	ACCIDENT DATE	ACCIDENT LOCATION	ACCIDENT CIRCUMSTANCES	REASON NOT INVESTIGATED
RR--Transit	1/1/09	New York-Newark, NY-NJ-CT	Person struck after falling onto tracks while train approaching.	Limited Board resources
RR--Transit	1/2/09	San Francisco, CA	Passenger car derailed at low speed.	Limited Board resources
RR--Transit	1/5/09	New Orleans, LA	Streetcar struck stopped motor vehicle on track.	Limited Board resources
RR--Transit	1/5/09	Phoenix-Mesa, AZ	Train struck automobile.	Limited Board resources
RR--Transit	1/6/09	Chicago, IL-IN	Train struck automobile.	Limited Board resources
RR--Transit	1/7/09	San Francisco, CA	Passenger car derailed at low speed.	Limited Board resources
RR--Transit	1/8/09	Philadelphia, PA-NJ-DE-MD	Automobile struck train.	Limited Board resources
RR--Transit	1/8/09	Miami, FL	Passenger car derailed at low speed.	Limited Board resources
RR--Transit	1/8/09	Salt Lake City, UT	Person struck after falling onto tracks while train approaching.	Limited Board resources
RR--Transit	1/10/09	New York-Newark, NY-NJ-CT	Trespasser struck by train.	Limited Board resources
RR--Transit	1/12/09	San Diego, CA	Train struck bus.	Limited Board resources
RR--Transit	1/12/09	San Diego, CA	Passenger car derailed at low speed.	Limited Board resources
RR--Transit	1/13/09	Philadelphia, PA-NJ-DE-MD	Train struck automobile.	Limited Board resources
RR--Transit	1/14/09	Boston, MA-NH-RI	Person struck by passing train.	Limited Board resources
RR--Transit	1/18/09	Salt Lake City, UT	Person struck by passing train.	Limited Board resources
RR--Transit	1/20/09	Chicago, IL-IN	Passenger car on fire.	Limited Board resources
RR--Transit	1/24/09	Portland, OR-WA	Train struck automobile.	Limited Board resources
RR--Transit	1/27/09	San Francisco-Oakland, CA	Train struck automobile.	Limited Board resources
RR--Transit	1/28/09	Los Angeles-Long Beach-Santa Ana, CA	Blind Patron fell between cars just as the train was beginning to move.	Limited Board resources
RR--Transit	1/28/09	San Francisco-Oakland, CA	Train struck automobile.	Limited Board resources
RR--Transit	1/31/09	Chicago, IL-IN	Person struck by train.	Limited Board resources
RR--Transit	2/1/09	Dallas-Fort Worth-Arlington, TX	Train struck automobile.	Limited Board resources
RR--Transit	2/2/09	Houston, TX	Automobile struck train.	Limited Board resources
RR--Transit	2/4/09	New York-Newark, NY-NJ-CT	Tresspasser struck by train.	Limited Board resources
RR--Transit	2/7/09	Boston, MA-NH-RI	Train struck automobile.	Limited Board resources
RR--Transit	2/8/09	San Francisco-Oakland, CA	Tresspasser struck by train.	Limited Board resources
RR--Transit	2/8/09	San Francisco-Oakland, CA	Tresspasser struck by train.	Limited Board resources
RR--Transit	2/10/09	Phoenix-Mesa, AZ	Train struck city bus.	Limited Board resources
RR--Transit	2/10/09	Boston, MA-NH-RI	Tresspasser struck by train.	Limited Board resources
RR--Transit	2/11/09	Denver-Aurora, CO	Passenger train derailed at low speed.	Limited Board resources
RR--Transit	2/12/09	New Orleans, LA	Tresspasser struck by train.	Limited Board resources
RR--Transit	2/13/09	New York-Newark, NY-NJ-CT	Passenger train derailed at low speed.	Limited Board resources
RR--Transit	2/15/09	Phoenix-Mesa, AZ	LRV poceeding into interesection when other vehicle ran the red light	Limited Board resources
RR--Transit	2/18/09	Chicago, IL-IN	Passenger train derailed at low speed.	Limited Board resources
RR--Transit	2/19/09	Washington, DC-VA-MD	Passenger train derailed at low speed.	Limited Board resources
RR--Transit	2/19/09	Atlanta, GA	Tresspasser struck by train.	Limited Board resources

ACCIDENTS REQUIRED TO BE INVESTIGATED UNDER SECTION 1131 BUT NOT INVESTIGATED

Mode	ACCIDENT DATE	ACCIDENT LOCATION	ACCIDENT CIRCUMSTANCES	REASON NOT INVESTIGATED
RR--Transit	2/21/09	New York-Newark, NY-NJ-CT	Tresspasser struck by train.	Limited Board resources
RR--Transit	2/21/09	Sacramento, CA	Bicycle rider struck by train.	Limited Board resources
RR--Transit	2/22/09	San Francisco-Oakland, CA	Cable car struck automobile.	Limited Board resources
RR--Transit	2/27/09	New York-Newark, NY-NJ-CT	Tresspasser struck by train.	Limited Board resources
RR--Transit	2/27/09	New York-Newark, NY-NJ-CT	Tresspasser struck by train.	Limited Board resources
RR--Transit	3/2/09	Salt Lake City, UT	Passenger disembarked northbound train and walked to end of platform where he jumped onto his skateboard and crossed the predestrain crossing without stopping. Soundbound train struck him.	Limited Board resources
RR--Transit	3/4/09	Philadelphia, PA-NJ-DE-MD	Tresspasser struck by train.	Limited Board resources
RR--Transit	3/5/09	New York-Newark, NY-NJ-CT	Person struck after falling onto tracks while train approaching.	Limited Board resources
RR--Transit	3/6/09	Chicago, IL-IN	Passenger struck by train.	Limited Board resources
RR--Transit	3/6/09	Phoenix-Mesa, AZ	Train struck automobile.	Limited Board resources
RR--Transit	3/7/09	Houston, TX	Train struck automobile.	Limited Board resources
RR--Transit	3/11/09	Atlanta, GA	Passenger car on fire.	Limited Board resources
RR--Transit	3/11/09	New York-Newark, NY-NJ-CT	Person struck by train.	Limited Board resources
RR--Transit	3/12/09	Memphis, TN-MS-AR	Train derailed at low speed.	Limited Board resources
RR--Transit	3/13/09	Baltimore, MD	Tresspasser struck by train.	Limited Board resources
RR--Transit	3/15/09	San Jose, CA	Tresspasser struck by train.	Limited Board resources
RR--Transit	3/16/09	San Francisco-Oakland, CA	Train struck a tractor-trailer.	Limited Board resources
RR--Transit	3/16/09	Portland, OR-WA	Tresspasser struck by train.	Limited Board resources
RR--Transit	3/17/09	San Diego, CA	Train struck automobile.	Limited Board resources
RR--Transit	3/18/09	San Francisco-Oakland, CA	Person struck by train.	Limited Board resources
RR--Transit	3/21/09	New York-Newark, NY-NJ-CT	Person struck by train.	Limited Board resources
RR--Transit	3/21/09	Memphis, TN-MS-AR	Train derailed at low speed.	Limited Board resources
RR--Transit	3/22/09	New York-Newark, NY-NJ-CT	Tresspasser struck by train.	Limited Board resources
RR--Transit	3/22/09	New York-Newark, NY-NJ-CT	Person struck by train.	Limited Board resources
RR--Transit	3/23/09	New York-Newark, NY-NJ-CT	Person struck by train.	Limited Board resources
RR--Transit	3/23/09	San Francisco-Oakland, CA	Train struck a person on passenger platform.	Limited Board resources
RR--Transit	3/25/09	San Francisco-Oakland, CA	Train struck automobile.	Limited Board resources
RR--Transit	3/29/09	Denver-Aurora, CO	Tresspasser struck by train.	Limited Board resources
RR--Transit	4/3/09	New York-Newark, NY-NJ-CT	Tresspasser struck by train.	Limited Board resources
RR--Transit	4/3/09	Chicago, IL-IN	Person struck by train.	Limited Board resources
RR--Transit	4/4/09	Baltimore, MD	Automobile struck train.	Limited Board resources
RR--Transit	4/4/09	Baltimore, MD	Person struck by train.	Limited Board resources
RR--Transit	4/6/09	Los Angeles-Long Beach-Santa Ana, CA	Tresspasser struck by train.	Limited Board resources
RR--Transit	4/6/09	Houston, TX	Train struck automobile.	Limited Board resources
RR--Transit	4/7/09	New Orleans, LA	Streetcar #2023 of Canal Line crossed improperly-set switch and struck Streetcar #2008 which then struck Streetcar #2009.	Limited Board resources
RR--Transit	4/8/09	San Francisco-Oakland, CA	Train struck automobile.	Limited Board resources

ACCIDENTS REQUIRED TO BE INVESTIGATED UNDER SECTION 1131 BUT NOT INVESTIGATED

Mode	ACCIDENT DATE	ACCIDENT LOCATION	ACCIDENT CIRCUMSTANCES	REASON NOT INVESTIGATED
RR--Transit	4/12/09	Chicago, IL-IN	Passenger car on fire.	Limited Board resources
RR--Transit	4/14/09	Denver-Aurora, CO	Tresspasser struck by train.	Limited Board resources
RR--Transit	4/15/09	Seattle, WA	Train struck automobile.	Limited Board resources
RR--Transit	4/16/09	New Orleans, LA	Automobile struck streetcar.	Limited Board resources
RR--Transit	4/17/09	San Francisco-Oakland, CA	Automobile struck streetcar.	Limited Board resources
RR--Transit	4/18/09	New York-Newark, NY-NJ-CT	Person struck after falling onto tracks while train approaching.	Limited Board resources
RR--Transit	4/19/09	Minneapolis-St. Paul, MN	Train struck automobile.	Limited Board resources
RR--Transit	4/19/09	Memphis, TN-MS-AR	Train derailed at low speed.	Limited Board resources
RR--Transit	4/21/09	Charlotte, NC-SC	Train struck automobile.	Limited Board resources
RR--Transit	4/23/09	Boston, MA-NH-RI	Train derailed at low speed.	Limited Board resources
RR--Transit	4/24/09	Seattle, WA	Tresspasser struck by train.	Limited Board resources
RR--Transit	4/25/09	New York-Newark, NY-NJ-CT	Person struck after falling onto tracks while train approaching.	Limited Board resources
RR--Transit	4/26/09	New Orleans, LA	Automobile struck streetcar.	Limited Board resources
RR--Transit	4/26/09	San Francisco-Oakland, CA	Historic rail vehicle made contact to the rear of an auto which pushed the auto into the rear of a motorcycle.	Limited Board resources
RR--Transit	4/27/09	Portland, OR-WA	Pedestrian stepped in front of the train.	Limited Board resources
RR--Transit	4/29/09	St. Louis, MO-IL	Passenger walked in front of train.	Limited Board resources
RR--Transit	4/29/09	New York-Newark, NY-NJ-CT	Tresspasser struck by train.	Limited Board resources
RR--Transit	5/3/09	Sacramento, CA	Train struck automobile.	Limited Board resources
RR--Transit	5/8/09	Baltimore, MD	Automobile struck train.	Limited Board resources
RR--Transit	5/10/09	Philadelphia, PA-NJ-DE-MD	Person struck by train.	Limited Board resources
RR--Transit	5/18/09	Chicago, IL-IN	Person struck by train.	Limited Board resources
RR--Transit	5/18/09	Boston, MA-NH-RI	Passenger car on fire.	Limited Board resources
RR--Transit	5/20/09	Chicago, IL-IN	Person struck by train.	Limited Board resources
RR--Transit	5/21/09	Los Angeles-Long Beach-Santa Ana, CA	Tresspasser struck by train.	Limited Board resources
RR--Transit	5/21/09	Los Angeles-Long Beach-Santa Ana, CA	Person struck by train.	Limited Board resources
RR--Transit	5/21/09	San Jose, CA	Person struck by train.	Limited Board resources
RR--Transit	5/22/09	New York-Newark, NY-NJ-CT	Person struck by train.	Limited Board resources
RR--Transit	5/22/09	Memphis, TN-MS-AR	Trolley 204 failed to stop and collided with the rearend of a SUV and then the rear end of a taxicab. Taxi was pushed into the rearend of trolley 454.	Limited Board resources
RR--Transit	5/27/09	Boston, MA-NH-RI	Tresspasser struck by train.	Limited Board resources
RR--Transit	5/30/09	Pittsburgh, PA	Tresspasser struck by train.	Limited Board resources
RR--Transit	5/30/09	New York-Newark, NY-NJ-CT	Person struck by train.	Limited Board resources
RR--Transit	6/2/09	New Orleans, LA	Streetcar #948 impacted Streetcar #937 at the above intersection when the operator of #948 failed to make the appropriate stop.	Limited Board resources
RR--Transit	6/4/09	Phoenix-Mesa, AZ	Train struck bus.	Limited Board resources
RR--Transit	6/4/09	San Francisco-Oakland, CA	Cable cars struck by taxi.	Limited Board resources
RR--Transit	6/7/09	New Orleans, LA	Pedestrian struck by streetcar.	Limited Board resources

ACCIDENTS REQUIRED TO BE INVESTIGATED UNDER SECTION 1131 BUT NOT INVESTIGATED

Mode	ACCIDENT DATE	ACCIDENT LOCATION	ACCIDENT CIRCUMSTANCES	REASON NOT INVESTIGATED
RR--Transit	6/7/09	Chicago, IL-IN	Person struck by train.	Limited Board resources
RR--Transit	6/11/09	Chicago, IL-IN	Train struck automobile.	Limited Board resources
RR--Transit	6/11/09	San Francisco-Oakland, CA	Train derailed at low speed.	Limited Board resources
RR--Transit	6/13/09	Philadelphia, PA-NJ-DE-MD	Automobile struck train.	Limited Board resources
RR--Transit	6/15/09	Philadelphia, PA-NJ-DE-MD	Person struck by train.	Limited Board resources
RR--Transit	6/18/09	San Jose, CA	Pedestrian went around crossing gate into path of train.	Limited Board resources
RR--Transit	6/18/09	Chicago, IL-IN	Person struck by train.	Limited Board resources
RR--Transit	6/19/09	Miami, FL	Employee was inspecting tracks when train fatally struck him.	Limited Board resources
RR--Transit	6/25/09	Salt Lake City, UT	Train car on fire due to a serious ground fault event.	Limited Board resources
RR--Transit	6/26/09	Boston, MA-NH-RI	Automobile struck train.	Limited Board resources
RR--Transit	6/26/09	San Jose, CA	Person struck by train.	Limited Board resources
RR--Transit	6/28/09	Dallas-Fort Worth-Arlington, TX	Automobile struck train.	Limited Board resources
RR--Transit	6/28/09	Los Angeles-Long Beach-Santa Ana, CA	Person struck by train.	Limited Board resources
RR--Transit	6/28/09	San Diego, CA	Tresspasser struck by train.	Limited Board resources
RR--Transit	6/29/09	New York-Newark, NY-NJ-CT	A 38-year old male on a bicycle crashed into the mid-point of train.	Limited Board resources
RR--Transit	6/29/09	Seattle, WA	Train struck automobile.	Limited Board resources
RR--Transit	6/30/09	New York-Newark, NY-NJ-CT	Person struck by train.	Limited Board resources
RR--Transit	6/30/09	Chicago, IL-IN	Person struck by train.	Limited Board resources
RR--Transit	7/1/09	Baltimore, MD	Train struck automobile.	Limited Board resources
RR--Transit	7/5/09	Baltimore, MD	Two pedestrains struck by train.	Limited Board resources
RR--Transit	7/5/09	Phoenix-Mesa, AZ	Train struck automobile.	Limited Board resources
RR--Transit	7/7/09	Houston, TX	Person struck by train.	Limited Board resources
RR--Transit	7/9/09	New York-Newark, NY-NJ-CT	Train struck truck.	Limited Board resources
RR--Transit	7/9/09	Baltimore, MD	Person struck by train.	Limited Board resources
RR--Transit	7/11/09	New Orleans, LA	Streetcar struck pedestrian.	Limited Board resources
RR--Transit	7/12/09	San Diego, CA	Person struck by train.	Limited Board resources
RR--Transit	7/14/09	Salt Lake City, UT	Person struck by train.	Limited Board resources
RR--Transit	7/16/09	San Francisco-Oakland, CA	Train hit the bottom of a aerial boom lift extended into the right-of-way from the platform level of the station. A contractor electrician was in the bucket and was injured.	Limited Board resources
RR--Transit	7/17/09	Houston, TX	Automobile struck train.	Limited Board resources
RR--Transit	7/19/09	Chicago, IL-IN	A four car train struck the rear of a eight car train at low speed.	Limited Board resources
RR--Transit	7/21/09	Houston, TX	Train struck automobile.	Limited Board resources
RR--Transit	7/24/09	Dallas-Fort Worth-Arlington, TX	Tresspasser struck by train.	Limited Board resources
RR--Transit	7/25/09	New York-Newark, NY-NJ-CT	Tresspasser struck by train.	Limited Board resources

ACCIDENTS REQUIRED TO BE INVESTIGATED UNDER SECTION 1131 BUT NOT INVESTIGATED

Mode	ACCIDENT DATE	ACCIDENT LOCATION	ACCIDENT CIRCUMSTANCES	REASON NOT INVESTIGATED
RR--Transit	7/26/09	San Diego, CA	A male adult entered crossing on a bicycle and was struck by train. A small child was in a child seat on the back of the bike. The child received fatal injuries.	Limited Board resources
RR--Transit	7/27/09	Seattle, WA	Tresspasser struck by train.	Limited Board resources
RR--Transit	7/28/09	San Francisco-Oakland, CA	Train derailed at low speed.	Limited Board resources
RR--Transit	7/29/09	Sacramento, CA	Bicyclist riding wrong way on 1 way street rode into the side of train.	Limited Board resources
RR--Transit	7/30/09	Phoenix-Mesa, AZ	Hotel van struck train.	Limited Board resources
RR--Transit	7/30/09	New Orleans, LA	Streetcar struck automobile.	Limited Board resources
RR--Transit	8/1/09	Baltimore, MD	Train struck automobile.	Limited Board resources
RR--Transit	8/1/09	Seattle, WA	Pedestrian walked into side of moving train.	Limited Board resources
RR--Transit	8/3/09	Minneapolis-St. Paul, MN	Train struck automobile.	Limited Board resources
RR--Transit	8/3/09	San Francisco-Oakland, CA	Train struck automobile.	Limited Board resources
RR--Transit	8/3/09	New York-Newark, NY-NJ-CT	Tresspasser struck by train.	Limited Board resources
RR--Transit	8/3/09	Boston, MA-NH-RI	Tresspasser struck by train.	Limited Board resources
RR--Transit	8/5/09	Philadelphia, PA-NJ-DE-MD	Automobile struck train.	Limited Board resources
RR--Transit	8/6/09	Baltimore, MD	Train struck automobile.	Limited Board resources
RR--Transit	8/7/09	Philadelphia, PA-NJ-DE-MD	HIT BY AUTO	Limited Board resources
RR--Transit	8/9/09	Washington, DC-VA-MD	Employee was struck by Track Unit BR01 outside of the Dunn Loring Station on Track #2.	Limited Board resources
RR--Transit	8/11/09	San Francisco-Oakland, CA	Person struck by train.	Limited Board resources
RR--Transit	8/12/09	New York-Newark, NY-NJ-CT	Person struck by train.	Limited Board resources
RR--Transit	8/13/09	Minneapolis-St. Paul, MN	Tresspasser struck by train.	Limited Board resources
RR--Transit	8/13/09	New York-Newark, NY-NJ-CT	Person struck by train.	Limited Board resources
RR--Transit	8/20/09	Boston, MA-NH-RI	Person struck by train.	Limited Board resources
RR--Transit	8/22/09	New York-Newark, NY-NJ-CT	Person struck by train.	Limited Board resources
RR--Transit	8/22/09	Portland, OR-WA	Train struck automobile.	Limited Board resources
RR--Transit	8/22/09	New York-Newark, NY-NJ-CT	Person struck by train.	Limited Board resources
RR--Transit	8/23/09	New York-Newark, NY-NJ-CT	Person struck by train.	Limited Board resources
RR--Transit	8/23/09	Philadelphia, PA-NJ-DE-MD	Person struck by train.	Limited Board resources
RR--Transit	8/26/09	Washington, DC-VA-MD	Two employees were injured as a result of a collision inside the West Falls Church car maintenance shop.	Limited Board resources
RR--Transit	8/28/09	Houston, TX	Train struck automobile.	Limited Board resources
RR--Transit	8/29/09	New Orleans, LA	Train struck automobile.	Limited Board resources
RR--Transit	9/1/09	Chicago, IL-IN	Person struck by train.	Limited Board resources
RR--Transit	9/3/09	San Francisco-Oakland, CA	Person struck by train.	Limited Board resources
RR--Transit	9/4/09	Phoenix-Mesa, AZ	Automobile struck train.	Limited Board resources
RR--Transit	9/4/09	New York-Newark, NY-NJ-CT	Person struck by train.	Limited Board resources
RR--Transit	9/6/09	St. Louis, MO-IL	Train struck trespasser on tracks.	Limited Board resources
RR--Transit	9/6/09	New York-Newark, NY-NJ-CT	Tresspasser struck by train.	Limited Board resources
RR--Transit	9/6/09	Minneapolis-St. Paul, MN	Tresspasser struck by train.	Limited Board resources
RR--Transit	9/7/09	Salt Lake City, UT	Automobile struck train.	Limited Board resources
RR--Transit	9/9/09	Memphis, TN-MS-AR	Train struck truck.	Limited Board resources

ACCIDENTS REQUIRED TO BE INVESTIGATED UNDER SECTION 1131 BUT NOT INVESTIGATED

Mode	ACCIDENT DATE	ACCIDENT LOCATION	ACCIDENT CIRCUMSTANCES	REASON NOT INVESTIGATED
RR--Transit	9/10/09	San Francisco-Oakland, CA	Person struck by train.	Limited Board resources
RR--Transit	9/10/09	Washington, DC-VA-MD	Employee was struck by train.	Limited Board resources
RR--Transit	9/13/09	New York-Newark, NY-NJ-CT	Person struck by train.	Limited Board resources
RR--Transit	9/14/09	New York-Newark, NY-NJ-CT	Person struck by train.	Limited Board resources
RR--Transit	9/16/09	Denver-Aurora, CO	Bicyclist struck by train.	Limited Board resources
RR--Transit	9/18/09	Philadelphia, PA-NJ-DE-MD	Automobile struck train.	Limited Board resources
RR--Transit	9/20/09	Minneapolis-St. Paul, MN	Train struck automobile.	Limited Board resources
RR--Transit	9/22/09	Memphis, TN-MS-AR	Trolley derailed at low speed.	Limited Board resources
RR--Transit	9/23/09	Seattle, WA	Train struck automobile.	Limited Board resources
RR--Transit	9/25/09	Salt Lake City, UT	Train derailed at low speed.	Limited Board resources
RR--Transit	9/26/09	Seattle, WA	Train struck automobile.	Limited Board resources
RR--Transit	9/28/09	Baltimore, MD	Train struck automobile.	Limited Board resources
RR--Transit	10/1/09	Portland, OR-WA	Tresspasser struck by train.	Limited Board resources
RR--Transit	10/3/09	Baltimore, MD	Automobile struck train.	Limited Board resources
RR--Transit	10/6/09	New Orleans, LA	Automobile struck streetcar.	Limited Board resources
RR--Transit	10/10/09	Philadelphia, PA-NJ-DE-MD	Van struck train.	Limited Board resources
RR--Transit	10/11/09	New York-Newark, NY-NJ-CT	Tresspasser struck by train.	Limited Board resources
RR--Transit	10/17/09	Minneapolis-St. Paul, MN	Person struck by train.	Limited Board resources
RR--Transit	10/19/09	New York-Newark, NY-NJ-CT	Train derailed at low speed.	Limited Board resources
RR--Transit	10/19/09	San Jose, CA	Train struck automobile.	Limited Board resources
RR--Transit	10/21/09	Phoenix-Mesa, AZ	Train struck automobile.	Limited Board resources
RR--Transit	10/21/09	Philadelphia, PA-NJ-DE-MD	Person struck by train.	Limited Board resources
RR--Transit	10/27/09	Chicago, IL-IN	Person struck by train.	Limited Board resources
RR--Transit	10/28/09	Chicago, IL-IN	Person struck by train.	Limited Board resources
RR--Transit	10/31/09	Baltimore, MD	Automobile struck train.	Limited Board resources
RR--Transit	11/1/09	New York-Newark, NY-NJ-CT	Person struck by train.	Limited Board resources
RR--Transit	11/2/09	Baltimore, MD	Train struck automobile.	Limited Board resources
RR--Transit	11/5/09	Phoenix-Mesa, AZ	Train struck automobile.	Limited Board resources
RR--Transit	11/6/09	New Orleans, LA	Train struck automobile.	Limited Board resources
RR--Transit	11/6/09	Los Angeles-Long Beach-Santa Ana, CA	Person struck by train.	Limited Board resources
RR--Transit	11/7/09	New Orleans, LA	Automobile struck train.	Limited Board resources
RR--Transit	11/11/09	Philadelphia, PA-NJ-DE-MD	Automobile struck train.	Limited Board resources
RR--Transit	11/17/09	New Orleans, LA	Person struck by train.	Limited Board resources
RR--Transit	11/17/09	San Francisco-Oakland, CA	Train derailed at low speed.	Limited Board resources
RR--Transit	11/18/09	Philadelphia, PA-NJ-DE-MD	Automobile struck train.	Limited Board resources
RR--Transit	11/19/09	New York-Newark, NY-NJ-CT	Person struck by train.	Limited Board resources
RR--Transit	11/19/09	Salt Lake City, UT	Person struck by train.	Limited Board resources
RR--Transit	11/20/09	Los Angeles-Long Beach-Santa Ana, CA	Person struck by train.	Limited Board resources
RR--Transit	11/20/09	New Orleans, LA	Train struck automobile.	Limited Board resources
RR--Transit	11/21/09	Chicago, IL-IN	Person struck by train.	Limited Board resources
RR--Transit	11/22/09	San Jose, CA	Train struck automobile.	Limited Board resources
RR--Transit	11/22/09	Portland, OR-WA	Person struck by train.	Limited Board resources
RR--Transit	11/24/09	San Diego, CA	Bicylist struck by train.	Limited Board resources
RR--Transit	12/2/09	Phoenix-Mesa, AZ	Train struck automobile.	Limited Board resources

ACCIDENTS REQUIRED TO BE INVESTIGATED UNDER SECTION 1131 BUT NOT INVESTIGATED

Mode	ACCIDENT DATE	ACCIDENT LOCATION	ACCIDENT CIRCUMSTANCES	REASON NOT INVESTIGATED
RR--Transit	12/3/09	Denver-Aurora, CO	Tresspasser struck by train.	Limited Board resources
RR--Transit	12/4/09	Baltimore, MD	Train struck automobile.	Limited Board resources
RR--Transit	12/9/09	San Francisco-Oakland, CA	Train derailed at low speed.	Limited Board resources
RR--Transit	12/10/09	New York-Newark, NY-NJ-CT	Person struck by train.	Limited Board resources
RR--Transit	12/12/09	Chicago, IL-IN	Train derailed at low speed.	Limited Board resources
RR--Transit	12/12/09	San Diego, CA	Train derailed at low speed.	Limited Board resources
RR--Transit	12/12/09	San Jose, CA	Car turned left on a red light into the path of the train	Limited Board resources
RR--Transit	12/14/09	New York-Newark, NY-NJ-CT	Person struck by train.	Limited Board resources
RR--Transit	12/16/09	San Jose, CA	Train struck automobile.	Limited Board resources
RR--Transit	12/17/09	San Diego, CA	Person struck by train.	Limited Board resources
RR--Transit	12/17/09	New York-Newark, NY-NJ-CT	Person struck by train.	Limited Board resources
RR--Transit	12/18/09	Salt Lake City, UT	Tresspasser struck by train.	Limited Board resources
RR--Transit	12/20/09	San Francisco-Oakland, CA	Person struck by train.	Limited Board resources
RR--Transit	12/24/09	Dallas-Fort Worth-Arlington, TX	Person struck by train.	Limited Board resources
RR--Transit	12/27/09	Washington, DC-VA-MD	Person struck by train.	Limited Board resources
RR--Transit	12/28/09	Minneapolis-St. Paul, MN	Train struck automobile.	Limited Board resources
RR--Transit	12/31/09	Portland, OR-WA	Person struck by train.	Limited Board resources
RR--Transit	12/31/09	New Orleans, LA	Person struck by streetcar.	Limited Board resources
RR--Transit	12/31/09	Chicago, IL-IN	Bicylist struck by train.	Limited Board resources
RR--Employees		**Employee Fatalities**		
RR--Employees	1/9/09	Westchester, NY	MNCW employee struck by passenger train.	Limited Board resources
RR--Employees	1/16/09	De Baca, NM	BNSF employee struck by freight train.	Limited Board resources
RR--Employees	1/23/09	Coconino, AZ	BNSF employee struck by maintenance of way equipment.	Limited Board resources
RR--Employees	1/28/09	Pottawattamie, IA	UP employee struck by locomotive in rail yard.	Limited Board resources
RR-Employees	2/7/09	Navajo, AZ	BNSF employee struck by freight train.	Limited Board resources
RR-Employees	2/8/09	Dickinson, KS	UP employee struck by freight train.	Limited Board resources
RR-Employees	2/28/09	De Baca, NM	BNSF employee struck by freight train.	Limited Board resources
RR-Employees	5/11/09	Bucks, PA	CSX employee struck by tractor-trailer.	Limited Board resources
RR-Employees	6/24/09	Marshall, AL	AL & TN Railroad employee pinned between object while riding on rail car.	Limited Board resources
RR-Employees	9/23/09	Deaf Smith, TX	BNSF employee struck by freight train.	Limited Board resources
RR-Employees	11/5/09	Philadelpia, PA	SEPTA employee struck by passenger train.	Limited Board resources
RR-Employees	11/6/09	Niobrara, WY	UP employee struck by freight train.	Limited Board resources
RR-Tresspassers		**Accidents involving Tresspassers**		
RR-Tresspassers	1/3/09	PA / ALLEGHENY	On track, struck by freight train	Limited Board resources
RR-Tresspassers	1/4/09	PA / BUCKS	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	1/4/09	MA / BRISTOL	On track, struck by passenger train.	Limited Board resources

ACCIDENTS REQUIRED TO BE INVESTIGATED UNDER SECTION 1131 BUT NOT INVESTIGATED

Mode	ACCIDENT DATE	ACCIDENT LOCATION	ACCIDENT CIRCUMSTANCES	REASON NOT INVESTIGATED
RR-Tresspassers	1/6/09	OH / OTTAWA	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	1/7/09	AZ / APACHE	Beside track, struck by frieght train.	Limited Board resources
RR-Tresspassers	1/10/09	MS / HINDS	Between cars/locomotives, struck by freight train.	Limited Board resources
RR-Tresspassers	1/10/09	CA / ALAMEDA	Beside track, struck by frieght train.	Limited Board resources
RR-Tresspassers	1/11/09	CA / VENTURA	In tunnel, struck by passenger train.	Limited Board resources
RR-Tresspassers	1/11/09	IL / DE KALB	Beside track, struck by frieght train.	Limited Board resources
RR-Tresspassers	1/13/09	MA / BRISTOL	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	1/13/09	MS / JACKSON	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	1/18/09	TN / DAVIDSON	Beside track, struck by frieght train.	Limited Board resources
RR-Tresspassers	1/19/09	NJ / MONMOUTH	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	1/22/09	CA / ALAMEDA	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	1/23/09	FL / OSCEOLA	Beside track, struck by frieght train.	Limited Board resources
RR-Tresspassers	1/24/09	NJ / MIDDLESEX	On top of rail car, electrical shock from contract with catenary.	Limited Board resources
RR-Tresspassers	1/30/09	TX / TARRANT	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	2/2/09	CA / ALAMEDA	Beside track, struck by frieght train.	Limited Board resources
RR-Tresspassers	2/3/09	PA / ALLEGHENY	On track, struck by locomotives.	Limited Board resources
RR-Tresspassers	2/4/09	GA / DECATUR	On track, struck by freight train	Limited Board resources
RR-Tresspassers	2/6/09	GA / CLAYTON	On track, struck by freight train	Limited Board resources
RR-Tresspassers	2/6/09	TX / MAVERICK	Between cars/locomotives, struck by freight train.	Limited Board resources
RR-Tresspassers	2/7/09	TX / MAVERICK	Fell from end of rail car.	Limited Board resources
RR-Tresspassers	2/11/09	NJ / ESSEX	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	2/12/09	IL / DU PAGE	Between tracks, struck by passenger train.	Limited Board resources
RR-Tresspassers	2/13/09	WA / CLARK	Beside track, struck by frieght train.	Limited Board resources
RR-Tresspassers	2/13/09	AZ / MOHAVE	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	2/14/09	MN / RAMSEY	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	2/15/09	MA / NORFOLK	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	2/16/09	CA / SACRAMENTO	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	2/17/09	MI / KALAMAZOO	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	2/18/09	CA / ALAMEDA	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	2/21/09	VA / MONTGOMERY	On track, struck by freight train	Limited Board resources
RR-Tresspassers	2/22/09	IN / MARION	On track, struck by locomotives.	Limited Board resources
RR-Tresspassers	2/23/09	NJ / ESSEX	Beside track, struck by frieght train.	Limited Board resources
RR-Tresspassers	2/23/09	CA / SAN BERNARDINO	On track, struck by freight train	Limited Board resources
RR-Tresspassers	2/24/09	VA / FAIRFAX	On track, struck by freight train	Limited Board resources
RR-Tresspassers	2/25/09	NC / HARNETT	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	2/25/09	CA / YUBA	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	2/25/09	LA / ASCENSION	On track, struck by freight train	Limited Board resources
RR-Tresspassers	2/26/09	SC / SPARTANBURG	On track, struck by passenger train.	Limited Board resources

ACCIDENTS REQUIRED TO BE INVESTIGATED UNDER SECTION 1131 BUT NOT INVESTIGATED

Mode	ACCIDENT DATE	ACCIDENT LOCATION	ACCIDENT CIRCUMSTANCES	REASON NOT INVESTIGATED
RR-Tresspassers	2/26/09	CO / DOUGLAS	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	2/27/09	CA / SAN BERNARDINO	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	2/27/09	IL / DU PAGE	Between tracks, struck by passenger train.	Limited Board resources
RR-Tresspassers	2/28/09	NJ / SOMERSET	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	3/1/09	NC / CABARRUS	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	3/2/09	IL / MCDONOUGH	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	3/2/09	FL / DADE	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	3/3/09	IA / DES MOINES	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	3/4/09	KS / SEDGWICK	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	3/4/09	WV / LOGAN	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	3/5/09	OH / FRANKLIN	On track, struck by freight train	Limited Board resources
RR-Tresspassers	3/5/09	PA / BERKS	On track, struck by freight train	Limited Board resources
RR-Tresspassers	3/7/09	OH / LORAIN	On track, struck by freight train	Limited Board resources
RR-Tresspassers	3/7/09	MO / ST LOUIS	On track, struck by freight train	Limited Board resources
RR-Tresspassers	3/7/09	PA / CUMBERLAND	Beside track, struck by frieght train.	Limited Board resources
RR-Tresspassers	3/8/09	NM / QUAY	On track, struck by freight train	Limited Board resources
RR-Tresspassers	3/10/09	RI / KENT	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	3/11/09	NJ / UNION	Beside track, struck by frieght train.	Limited Board resources
RR-Tresspassers	3/12/09	PA / PHILADELPHIA	Beside track, struck by passenger train.	Limited Board resources
RR-Tresspassers	3/13/09	MO / SCOTT	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	3/13/09	AL / ST CLAIR	Beside track, struck by frieght train.	Limited Board resources
RR-Tresspassers	3/14/09	PA / ERIE	On track, struck by freight train	Limited Board resources
RR-Tresspassers	3/14/09	CA / IMPERIAL	On track, struck by freight train	Limited Board resources
RR-Tresspassers	3/15/09	NE / RICHARDSON	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	3/15/09	MO / GREENE	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	3/15/09	NY / ERIE	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	3/16/09	NC / MECKLENBURG	On track, struck by freight train	Limited Board resources
RR-Tresspassers	3/16/09	KY / KENTON	Beside track, struck by frieght train.	Limited Board resources
RR-Tresspassers	3/18/09	TX / BRAZORIA	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	3/20/09	TX / HARRIS	On track, struck by locomotives.	Limited Board resources
RR-Tresspassers	3/21/09	MS / JACKSON	On track, struck by freight train	Limited Board resources
RR-Tresspassers	3/22/09	CA / FRESNO	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	3/22/09	NJ / SOMERSET	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	3/25/09	VA / NORFOLK	Between cars/locomotives, struck by freight train.	Limited Board resources
RR-Tresspassers	3/26/09	CA / ALAMEDA	On track, struck by passenger train.	Limited Board resources

ACCIDENTS REQUIRED TO BE INVESTIGATED UNDER SECTION 1131 BUT NOT INVESTIGATED

Mode	ACCIDENT DATE	ACCIDENT LOCATION	ACCIDENT CIRCUMSTANCES	REASON NOT INVESTIGATED
RR-Tresspassers	3/28/09	NY / MADISON	On track, struck by freight train	Limited Board resources
RR-Tresspassers	3/31/09	FL / POLK	On track, struck by freight train	Limited Board resources
RR-Tresspassers	3/31/09	TX / BEXAR	Beside track, struck by frieght train.	Limited Board resources
RR-Tresspassers	4/2/09	IL / MCLEAN	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	4/4/09	NE / RICHARDSON	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	4/6/09	PA / FAYETTE	On track, struck by freight train	Limited Board resources
RR-Tresspassers	4/10/09	CA / ORANGE	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	4/11/09	AL / TUSCALOOSA	On track, struck by freight train	Limited Board resources
RR-Tresspassers	4/13/09	MS / JACKSON	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	4/14/09	WA / COWLITZ	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	4/16/09	SC / OCONEE	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	4/16/09	OH / BUTLER	On track, struck by freight train	Limited Board resources
RR-Tresspassers	4/17/09	NJ / MONMOUTH	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	4/17/09	PA / BUCKS	Electrical shock due to contact with 3rd rail, catenary, pantograph	Limited Board resources
RR-Tresspassers	4/19/09	TX / HARRIS	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	4/19/09	PA / BERKS	On track, struck by freight train	Limited Board resources
RR-Tresspassers	4/19/09	IL / LAKE	On track, struck by freight train	Limited Board resources
RR-Tresspassers	4/20/09	NJ / PASSAIC	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	4/21/09	OH / HURON	On track, struck by freight train	Limited Board resources
RR-Tresspassers	4/21/09	PA / FAYETTE	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	4/21/09	MA / WORCESTER	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	4/21/09	LA / BOSSIER	Between tracks, struck by locomotive.	Limited Board resources
RR-Tresspassers	4/22/09	OH / PORTAGE	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	4/23/09	MD / PRINCE GEORGE'S	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	4/23/09	MS / HARRISON	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	4/23/09	TX / MONTGOMERY	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	4/25/09	CA / SAN DIEGO	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	4/25/09	WV / MORGAN	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	4/25/09	CA / SAN JOAQUIN	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	4/28/09	DC / WASHINGTON, DC	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	4/28/09	CA / VENTURA	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	4/30/09	NY / ESSEX	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	4/30/09	NC / GUILFORD	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	4/30/09	AZ / PINAL	Fell from side of car,	Limited Board resources
RR-Tresspassers	5/2/09	SC / LEXINGTON	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	5/3/09	FL / VOLUSIA	On bridge/trestle, struck by freight train.	Limited Board resources
RR-Tresspassers	5/3/09	TX / UVALDE	On track, struck by freight train.	Limited Board resources

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Mode	ACCIDENT DATE	ACCIDENT LOCATION	ACCIDENT CIRCUMSTANCES	REASON NOT INVESTIGATED
RR-Tresspassers	5/4/09	CA / SANTA CLARA	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	5/5/09	IL / COOK	Between tracks, struck by passenger train.	Limited Board resources
RR-Tresspassers	5/6/09	FL / HILLSBOROUGH	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	5/6/09	NC / JONES	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	5/7/09	OH / DEFIANCE	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	5/10/09	PA / WESTMORELAND	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	5/10/09	NY / DUTCHESS	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	5/10/09	OK / BRYAN	On bridge/trestle, struck by freight train.	Limited Board resources
RR-Tresspassers	5/11/09	CO / LARIMER	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	5/12/09	NJ / BERGEN	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	5/13/09	NY / DUTCHESS	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	5/13/09	KS / COWLEY	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	5/14/09	OR / KLAMATH	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	5/15/09	MD / BALTIMORE	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	5/15/09	CA / SAN JOAQUIN	Beside track, struck by frieght train.	Limited Board resources
RR-Tresspassers	5/17/09	PA / BUCKS	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	5/17/09	MI / WASHTENAW	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	5/19/09	AL / JEFFERSON	Between cars/locomotives, struck by freight train.	Limited Board resources
RR-Tresspassers	5/19/09	NJ / MIDDLESEX	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	5/20/09	FL / BROWARD	On bridge/trestle, struck by freight train.	Limited Board resources
RR-Tresspassers	5/21/09	LA / ALLEN	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	5/22/09	IL / COOK	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	5/23/09	CA / BUTTE	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	5/23/09	OH / FRANKLIN	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	5/23/09	SC / CHEROKEE	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	5/23/09	IN / MARION	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	5/24/09	WA / GRANT	Beside track, struck by frieght train.	Limited Board resources
RR-Tresspassers	5/24/09	IN / ELKHART	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	5/28/09	TX / LIBERTY	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	5/29/09	NJ / MERCER	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	5/30/09	GA / BARROW	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	5/30/09	TN / KNOX	Beside track, struck by frieght train.	Limited Board resources
RR-Tresspassers	6/2/09	SC / WILLIAMSBURG	On track, struck by locomotives.	Limited Board resources
RR-Tresspassers	6/2/09	CA / SANTA CLARA	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	6/3/09	FL / BROWARD	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	6/4/09	CA / ALAMEDA	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	6/4/09	LA / OUACHITA	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	6/5/09	CA / SANTA CLARA	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	6/6/09	CA / ALAMEDA	On track, struck by passenger train.	Limited Board resources

ACCIDENTS REQUIRED TO BE INVESTIGATED UNDER SECTION 1131 BUT NOT INVESTIGATED

Mode	ACCIDENT DATE	ACCIDENT LOCATION	ACCIDENT CIRCUMSTANCES	REASON NOT INVESTIGATED
RR-Tresspassers	6/7/09	OK / CLEVELAND	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	6/10/09	MI / BERRIEN	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	6/10/09	CA / KERN	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	6/10/09	TX / KINNEY	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	6/13/09	MD / HARFORD	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	6/13/09	MN / HENNEPIN	Between cars/locomotives, struck by freight train.	Limited Board resources
RR-Tresspassers	6/14/09	NY / ORANGE	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	6/15/09	CA / ORANGE	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	6/17/09	FL / DADE	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	6/18/09	NJ / HUDSON	In tunnel, struck by freight train.	Limited Board resources
RR-Tresspassers	6/19/09	MT / GALLATIN	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	6/19/09	MN / ISANTI	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	6/20/09	WA / KING	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	6/20/09	NJ / BURLINGTON	Beside track, struck by passenger train.	Limited Board resources
RR-Tresspassers	6/21/09	OH / COLUMBIANA	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	6/23/09	CA / SAN BERNARDINO	Beside track, struck by frieght train.	Limited Board resources
RR-Tresspassers	6/26/09	WA / KING	On bridge/trestle, struck by freight train.	Limited Board resources
RR-Tresspassers	6/27/09	NC / JOHNSTON	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	6/27/09	MA / WORCESTER	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	6/28/09	PA / MONROE	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	6/28/09	TX / DALLAS	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	6/29/09	ID / KOOTENAI	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	7/2/09	CT / FAIRFIELD	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	7/3/09	CA / ALAMEDA	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	7/3/09	NC / GUILFORD	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	7/4/09	AK / MATANUSKA SUSITNA	Beside track, struck by passenger train.	Limited Board resources
RR-Tresspassers	7/4/09	OH / LORAIN	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	7/5/09	WV / KANAWHA	Beside track, struck by frieght train.	Limited Board resources
RR-Tresspassers	7/6/09	KS / SUMNER	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	7/6/09	TX / DENTON	Beside track, struck by frieght train.	Limited Board resources
RR-Tresspassers	7/6/09	OH / LUCAS	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	7/7/09	TX / VICTORIA	In rail car. Exposure to fumes/inhalation.	Limited Board resources
RR-Tresspassers	7/7/09	TX / WEBB	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	7/8/09	CT / NEW LONDON	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	7/8/09	CA / SAN MATEO	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	7/9/09	NJ / HUDSON	On track, struck by passenger train.	Limited Board resources

ACCIDENTS REQUIRED TO BE INVESTIGATED UNDER SECTION 1131 BUT NOT INVESTIGATED

Mode	ACCIDENT DATE	ACCIDENT LOCATION	ACCIDENT CIRCUMSTANCES	REASON NOT INVESTIGATED
RR-Tresspassers	7/10/09	NY / ULSTER	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	7/11/09	OH / LUCAS	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	7/12/09	OH / HAMILTON	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	7/15/09	FL / BROWARD	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	7/15/09	MN / TODD	Beside track, struck by frieght train.	Limited Board resources
RR-Tresspassers	7/15/09	IN / CASS	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	7/16/09	TN / DAVIDSON	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	7/16/09	IL / MARION	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	7/16/09	PA / WESTMORELAND	Beside track, struck by frieght train.	Limited Board resources
RR-Tresspassers	7/17/09	NM / MCKINLEY	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	7/17/09	NY / ULSTER	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	7/18/09	MS / JONES	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	7/18/09	NC / ROCKINGHAM	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	7/18/09	TX / DENTON	Beside track, struck by frieght train.	Limited Board resources
RR-Tresspassers	7/19/09	MA / ESSEX	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	7/21/09	LA / CALCASIEU	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	7/22/09	CA / SANTA CLARA	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	7/23/09	GA / GORDON	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	7/23/09	IN / MARION	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	7/24/09	NM / CIBOLA	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	7/24/09	CO / DENVER	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	7/24/09	AZ / APACHE	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	7/25/09	NM / CIBOLA	Between tracks, struck by passenger train.	Limited Board resources
RR-Tresspassers	7/25/09	LA / ST TAMMANY	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	7/26/09	CA / SANTA BARBARA	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	7/28/09	CA / SOLANO	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	7/30/09	NY / ONEIDA	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	7/31/09	PA / LANCASTER	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	7/31/09	TX / SCURRY	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	7/31/09	OK / OKLAHOMA	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	8/1/09	PA / DELAWARE	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	8/1/09	TX / BURLESON	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	8/4/09	OH / CUYAHOGA	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	8/4/09	WA / CLARK	Between cars/locomotives, struck by freight train.	Limited Board resources
RR-Tresspassers	8/8/09	CA / VENTURA	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	8/10/09	UT / UTAH	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	8/10/09	CA / RIVERSIDE	Between tracks, struck by freight train	Limited Board resources

ACCIDENTS REQUIRED TO BE INVESTIGATED UNDER SECTION 1131 BUT NOT INVESTIGATED

Mode	ACCIDENT DATE	ACCIDENT LOCATION	ACCIDENT CIRCUMSTANCES	REASON NOT INVESTIGATED
RR-Tresspassers	8/10/09	IN / PORTER	On track, struck by locomotives.	Limited Board resources
RR-Tresspassers	8/10/09	FL / BREVARD	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	8/10/09	CA / SANTA CLARA	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	8/11/09	FL / POLK	Beside track, struck by frieght train.	Limited Board resources
RR-Tresspassers	8/11/09	IN / STARKE	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	8/13/09	CA / KERN	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	8/13/09	AZ / NAVAJO	Between cars/locomotives, struck by freight train.	Limited Board resources
RR-Tresspassers	8/14/09	WA / SKAMANIA	Beside track, struck by frieght train.	Limited Board resources
RR-Tresspassers	8/14/09	NY / HERKIMER	Between tracks, struck by locomotive.	Limited Board resources
RR-Tresspassers	8/15/09	NC / HALIFAX	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	8/15/09	NJ / MONMOUTH	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	8/15/09	GA / HOUSTON	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	8/16/09	IL / WILL	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	8/16/09	FL / BRADFORD	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	8/16/09	OR / MULTNOMAH	Between cars/locomotives, struck by freight train.	Limited Board resources
RR-Tresspassers	8/17/09	LA / ST TAMMANY	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	8/18/09	IL / COOK	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	8/19/09	OK / TULSA	Beside track, struck by frieght train.	Limited Board resources
RR-Tresspassers	8/19/09	PA / BERKS	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	8/20/09	AK / ANCHORAGE	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	8/21/09	AZ / MARICOPA	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	8/21/09	NM / MCKINLEY	Beside track, struck by frieght train.	Limited Board resources
RR-Tresspassers	8/21/09	CA / SAN MATEO	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	8/22/09	MI / KALAMAZOO	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	8/23/09	CA / KERN	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	8/23/09	IN / ELKHART	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	8/24/09	IL / MARSHALL	Beside track, struck by frieght train.	Limited Board resources
RR-Tresspassers	8/25/09	CA / YOLO	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	8/26/09	CA / LOS ANGELES	Beside track, struck by passenger train.	Limited Board resources
RR-Tresspassers	8/28/09	CO / ARAPAHOE	Beside track, struck by frieght train.	Limited Board resources
RR-Tresspassers	8/28/09	KY / JEFFERSON	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	8/30/09	MO / JACKSON	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	8/31/09	RI / KENT	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	8/31/09	OR / MARION	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	9/2/09	NC / ROBESON	Beside track, struck by locomotive.	Limited Board resources
RR-Tresspassers	9/2/09	AL / MORGAN	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	9/3/09	LA / ACADIA	Between tracks, struck by freight train	Limited Board resources

ACCIDENTS REQUIRED TO BE INVESTIGATED UNDER SECTION 1131 BUT NOT INVESTIGATED

Mode	ACCIDENT DATE	ACCIDENT LOCATION	ACCIDENT CIRCUMSTANCES	REASON NOT INVESTIGATED
RR-Tresspassers	9/3/09	AL / ST CLAIR	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	9/3/09	CA / SANTA BARBARA	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	9/4/09	CA / SANTA BARBARA	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	9/4/09	IL / COOK	Between tracks, struck by passenger train.	Limited Board resources
RR-Tresspassers	9/4/09	MO / NEWTON	Beside track, struck by locomotive.	Limited Board resources
RR-Tresspassers	9/4/09	NJ / BERGEN	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	9/4/09	OH / HAMILTON	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	9/5/09	MT / HILL	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	9/5/09	KY / HARDIN	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	9/5/09	GA / MCDUFFIE	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	9/5/09	NC / DAVIDSON	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	9/6/09	TX / GALVESTON	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	9/6/09	IN / LAKE	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	9/7/09	TX / TARRANT	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	9/9/09	AL / ESCAMBIA	Beside track, struck by frieght train.	Limited Board resources
RR-Tresspassers	9/9/09	MI / KENT	Beside track, struck by frieght train.	Limited Board resources
RR-Tresspassers	9/10/09	MA / FRANKLIN	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	9/10/09	CA / ORANGE	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	9/10/09	TX / WISE	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	9/11/09	WA / CLARK	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	9/12/09	NE / DAKOTA	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	9/13/09	MO / CASS	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	9/13/09	NC / JOHNSTON	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	9/13/09	MN / WABASHA	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	9/15/09	NJ / BERGEN	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	9/16/09	PA / CHESTER	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	9/17/09	MN / WRIGHT	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	9/18/09	NM / CIBOLA	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	9/18/09	OH / LUCAS	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	9/19/09	OH / AUGLAIZE	On track, struck by locomotives.	Limited Board resources
RR-Tresspassers	9/19/09	PA / ERIE	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	9/19/09	FL / PALM BEACH	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	9/20/09	KS / SHAWNEE	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	9/20/09	MA / ESSEX	Beside track, struck by frieght train.	Limited Board resources
RR-Tresspassers	9/20/09	TX / JACKSON	Between tracks, struck by locomotive.	Limited Board resources
RR-Tresspassers	9/20/09	MO / WARREN	On track, struck by freight train.	Limited Board resources

ACCIDENTS REQUIRED TO BE INVESTIGATED UNDER SECTION 1131 BUT NOT INVESTIGATED

Mode	ACCIDENT DATE	ACCIDENT LOCATION	ACCIDENT CIRCUMSTANCES	REASON NOT INVESTIGATED
RR-Tresspassers	9/22/09	WI / LA CROSSE	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	9/23/09	OK / OKLAHOMA	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	9/25/09	IN / MARION	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	9/26/09	NC / WAKE	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	9/26/09	NY / SUFFOLK	Beside track, struck by passenger train.	Limited Board resources
RR-Tresspassers	9/26/09	PA / LEHIGH	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	9/27/09	TX / WICHITA	Beside track, struck by frieght train.	Limited Board resources
RR-Tresspassers	9/28/09	OH / CLARK	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	9/29/09	WA / PIERCE	Beside track, struck by passenger train.	Limited Board resources
RR-Tresspassers	9/29/09	NY / BRONX	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	9/30/09	LA / ST JAMES	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	10/1/09	VA / PETERSBURG	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	10/3/09	TX / BRAZORIA	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	10/3/09	MO / HOLT	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	10/4/09	MA / HAMPDEN	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	10/5/09	PA / DELAWARE	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	10/5/09	DE / NEW CASTLE	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	10/7/09	CA / ALAMEDA	Beside track, struck by frieght train.	Limited Board resources
RR-Tresspassers	10/8/09	CA / SISKIYOU	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	10/8/09	MD / PRINCE GEORGE'S	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	10/8/09	OH / LAKE	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	10/11/09	MD / CECIL	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	10/11/09	IA / HENRY	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	10/11/09	OH / HAMILTON	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	10/11/09	CA / PLACER	On track, struck by locomotives.	Limited Board resources
RR-Tresspassers	10/12/09	NY / WESTCHESTER	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	10/13/09	DE / NEW CASTLE	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	10/15/09	GA / DOUGLAS	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	10/15/09	IL / LAKE	Beside track, struck by passenger train.	Limited Board resources
RR-Tresspassers	10/16/09	NJ / UNION	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	10/16/09	TX / BRAZOS	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	10/17/09	SD / PENNINGTON	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	10/19/09	FL / POLK	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	10/19/09	CA / SANTA CLARA	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	10/20/09	MN / MEEKER	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	10/21/09	WV / CABELL	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	10/22/09	IA / MILLS	Between tracks, struck by freight train	Limited Board resources

ACCIDENTS REQUIRED TO BE INVESTIGATED UNDER SECTION 1131 BUT NOT INVESTIGATED

Mode	ACCIDENT DATE	ACCIDENT LOCATION	ACCIDENT CIRCUMSTANCES	REASON NOT INVESTIGATED
RR-Tresspassers	10/22/09	GA / CHATHAM	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	10/23/09	NJ / MONMOUTH	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	10/24/09	KY / CHRISTIAN	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	10/24/09	FL / DADE	Beside track, struck by frieght train.	Limited Board resources
RR-Tresspassers	10/25/09	MI / JACKSON	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	10/30/09	NY / ORANGE	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	10/30/09	PA / WESTMORELAND	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	10/30/09	PA / WESTMORELAND	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	10/31/09	AK / ANCHORAGE	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	10/31/09	FL / DADE	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	10/31/09	CA / ALAMEDA	Beside track, struck by frieght train.	Limited Board resources
RR-Tresspassers	11/1/09	NM / TORRANCE	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	11/1/09	NY / SUFFOLK	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	11/1/09	NJ / HUDSON	On bridge/trestle, struck by passenger train.	Limited Board resources
RR-Tresspassers	11/1/09	TX / BEXAR	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	11/2/09	CA / ALAMEDA	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	11/3/09	IL / COOK	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	11/4/09	CA / ORANGE	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	11/4/09	CA / ORANGE	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	11/4/09	ID / BOUNDARY	Beside track, struck by frieght train.	Limited Board resources
RR-Tresspassers	11/4/09	OH / DELAWARE	On track, struck by locomotives.	Limited Board resources
RR-Tresspassers	11/5/09	OH / ASHTABULA	On track, struck by locomotives.	Limited Board resources
RR-Tresspassers	11/6/09	CA / SANTA CLARA	Between tracks, struck by passenger train.	Limited Board resources
RR-Tresspassers	11/6/09	RI / PROVIDENCE	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	11/6/09	CA / SAN MATEO	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	11/8/09	NM / MCKINLEY	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	11/9/09	NJ / CAMDEN	Beside track, struck by passenger train.	Limited Board resources
RR-Tresspassers	11/12/09	NJ / PASSAIC	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	11/13/09	VA / NEWPORT NEWS	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	11/15/09	CA / ALAMEDA	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	11/17/09	NY / ALLEGANY	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	11/18/09	AZ / COCHISE	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	11/19/09	VA / GREENSVILLE	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	11/20/09	MN / CLAY	On bridge/trestle	Limited Board resources
RR-Tresspassers	11/21/09	OK / CLEVELAND	Between tracks	Limited Board resources
RR-Tresspassers	11/22/09	IL / COOK	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	11/24/09	KY / MADISON	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	11/27/09	NC / CABARRUS	On track, struck by passenger train.	Limited Board resources

ACCIDENTS REQUIRED TO BE INVESTIGATED UNDER SECTION 1131 BUT NOT INVESTIGATED

Mode	ACCIDENT DATE	ACCIDENT LOCATION	ACCIDENT CIRCUMSTANCES	REASON NOT INVESTIGATED
RR-Tresspassers	12/4/09	OH / FRANKLIN	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	12/4/09	NY / QUEENS	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	12/5/09	IN / ELKHART	Beside track, struck by frieght train.	Limited Board resources
RR-Tresspassers	12/6/09	WA / PIERCE	Beside track, struck by frieght train.	Limited Board resources
RR-Tresspassers	12/8/09	MO / PHELPS	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	12/8/09	FL / OSCEOLA	Beside track, struck by frieght train.	Limited Board resources
RR-Tresspassers	12/9/09	OR / MARION	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	12/9/09	NJ / MONMOUTH	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	12/10/09	IL / COOK	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	12/12/09	IN / TIPPECANOE	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	12/15/09	PA / CHESTER	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	12/16/09	WA / BENTON	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	12/16/09	CA / SAN MATEO	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	12/17/09	LA / TERREBONNE	Beside track, struck by frieght train.	Limited Board resources
RR-Tresspassers	12/18/09	MN / BECKER	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	12/18/09	MO / JACKSON	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	12/19/09	FL / LEE	On track, struck by locomotives.	Limited Board resources
RR-Tresspassers	12/19/09	TX / ANGELINA	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	12/20/09	CA / LOS ANGELES	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	12/21/09	AL / MADISON	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	12/21/09	TX / TARRANT	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	12/23/09	FL / PALM BEACH	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	12/23/09	CA / SANTA CLARA	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	12/23/09	CA / FRESNO	Between cars/locomotives, struck by freight train.	Limited Board resources
RR-Tresspassers	12/27/09	NM / MCKINLEY	Between tracks, struck by freight train	Limited Board resources
RR-Tresspassers	12/27/09	AZ / MARICOPA	Beside track, struck by locomotives.	Limited Board resources
RR-Tresspassers	12/28/09	SC / BERKELEY	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	12/29/09	MI / KENT	On track, struck by freight train.	Limited Board resources
RR-Tresspassers	12/30/09	PA / BUCKS	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	12/31/09	WA / PIERCE	On track, struck by passenger train.	Limited Board resources
RR-Tresspassers	12/31/09	GA / MERIWETHER	On track, struck by freight train.	Limited Board resources

APPENDIX B

Accidents Exceeding the Expected Time Allotted for Completion by Board Order

ACCIDENTS EXCEEDING THE EXPECTED TIME ALLOTTED FOR COMPLETION BY BOARD ORDER

MODE	ACCIDENT DATE	ACCIDENT LOCATION	ACCIDENT CIRCUMSTANCES	EXPLANATION WHY ADDITIONAL TIME REQUIRED TO COMPLETE ACCIDENT REPORT
AVIATION	7/31/08	Owatonna, Minnesota	Hawker Beechcraft Landing Accident	Limited Resources
AVIATION	8/5/08	Weaverville, California	U.S. Forest Service Firefighting Helicopter Accident	Technical Complexity
AVIATION	9/19/08	Columbia, South Carolina	Learjet 60 Takeoff Accident	Limited Resources
AVIATION	12/20/08	Denver, Colorado	Continental Airlines Takeoff Accident	Involved New Technology -- Needed to Develop Knowledge
HIGHWAY	9/20/04	Sherman, Texas	Median Crossover, Collision, and Fire	Limited Resources
HIGHWAY	8/28/06	Westport, New York	Motorcoach Rollover (tire blowout and motorcoach rollover)	Technical Complexity
HIGHWAY	8/10/08	Annapolis, Maryland	Tractor-Semitrailer Rollover/ Compromised Bridge Parapet	Limited Resources
MARINE	7/2/08	Rhode Island Sound, Rhode Island	Collision Between Passenger Ferry *Block Island* and Coast Guard Cutter *Morro Bay*	Limited Resources
MARINE	10/22/08	Bearing Sea West of Adak, Alaska	Sinking of F/V *Katmai*	Following Schedule of USCG Investigation
PIPELINE	12/24/08	Rancho Cordova, California	House Explosion Caused by Natural Gas Release from Main/Service Line	Limited Resources
RAILROAD	1/16/07	Shepherdsville, Kentucky	Train derailment of hazardous materials/fire	Limited Resources/Technical Complexity
RAILROAD	4/1/08	Walbridge, Ohio	Yard Foreman Struck by CSX Freight Car	Limited Resources
RAILROAD	5/28/08	Chicago, Illinois	Derailment of CTA Passenger Cars on Elevated Track	Limited Resources
RAILROAD	11/20/08	near Rialto, California	Metrolink Passenger Train in Raking Collision with BNSF Railway Co. Freight Train	Limited Resources
RAILROAD	11/28/08	Miami Airport, Florida	Transit Shuttle Train Struck a Wall	Limited Resources/Technical Complexity

APPENDIX C

National Transportation Safety Board Assessment of Progress Toward Implementation of GAO Recommendations, December 2009

The following is the NTSB's report of progress toward adopting GAO recommendations, shown here in the same format as GAO reports GAO-08-652T and GAO-10-183T. Following each table, there is an NTSB management analysis that discusses improvements since the testimony's issuance. We are mainly focused in this discussion on areas where the agency has shown significant progress since the earliest GAO assessment. A full bubble indicates the status as *fully implemented*, a half bubble indicates *significant progress*, and an empty bubble indicates *new recommendation or limited progress*, based on either GAO's or our internal evaluation.

Management Recommendations

No.	GAO Recommendation	GAO Assessment Apr. 2008	GAO Assessment Oct. 2009	NTSB Assessment Dec. 2009
1	**Communication** Develop mechanisms to facilitate communication from staff to management.	●	●	●
2	Report to Congress on the status of GAO recommendations	◖	●	●
3	**Strategic Planning** Develop a revised strategic plan[5]	◖	◖	●
4	**Information Technology (IT)** Develop an IT plan	○	●	●
5	Encrypt information/data on all laptops and mobile devices	○	●	●
6	Limit local administrator privileges to those accounts that require that level of access	○	◖	◖
7	**Knowledge Management** Develop a knowledge management plan to create, capture, and reuse knowledge to achieve NTSB objectives	◖	◖	◖
8	**Organizational Structure** Align organizational structure to implement strategic plan	●	●	●
9	Eliminate unnecessary management layers	◖	◖	●

5 The status of Strategic Planning was changed to fully implemented by GAO in the January 27, 2010, testimony (GAO-10-366T).

10	**Human Capital Management** Develop a human capital plan	◖	◖	●
11	**Training** Develop a strategic training plan	○	◖	◖
12	Develop a core curriculum for investigators	○	◖	◖
13	**Financial Management** Correct violation of the Anti-Deficiency Act related to purchasing accident insurance for employees on official travel	●	●	●
14	Correct violation of the Ant-Deficiency Act related to agency's lease of the training center	◖	◖	◖
15	Develop a full cost accounting system to track time employees spend on each investigation and in training	○	◖	◖

Discussion

The NTSB has made significant progress addressing all of the general management recommendations originally issued by GAO in May and November 2006 and updated in April 2008 and October 2009. For example, the agency has greatly improved communications by disseminating management advisories, increasing the frequency of staff meetings, holding several all-hands meetings, and implementing a communications advisory committee. Three agencywide communications surveys were implemented 1 year apart, and the third survey revealed significant improvements in communications over time.

For Strategic Planning, the NTSB has developed and published the revised *NTSB 2010-2015 Strategic Plan*, which conforms to all best practices in government strategic planning and performance management. In addition, the NTSB has developed a comprehensive agency operating plan that flows from the overall agency Strategic Plan and includes fiscal year (FY) performance metrics. For FY 2010, this plan includes 70 performance measures, of which many are outcome-oriented, in accordance with Office of Management and Budget (OMB) and GAO guidance.

As for other specific plans, the NTSB has published an IT Strategic Plan, which was originally published in August 2007 and revised in 2008 and 2009. This revised plan includes a linkage of NTSB IT Strategic Goals to the overall strategic plan, an explanation of the objectives that were achieved in prior fiscal years, and objectives targeted for the remainder of the 5-year plan period. To address the issue of excessive administrator privileges the NTSB is in the midst of an agency-wide Federal Desktop Core Configuration (FDCC) implementation that is slated to be completed by July 2010. This approach is consistent with best practices and with information presented in GAO-10-202, Information Security: Agencies Need to Implement Federal Desktop Core Configuration Requirements (March 12, 2010). In addition, concerning management layers, a restructuring in the Office of Aviation Safety realigned the field structure such that needless management layers were eliminated. Furthermore, the Office of the Managing Director has initiated a realignment plan, which streamlines key office activities,

improves accountability, and fosters better decision-making. These changes will be completed in early 2010. Moving forward, the process for reviewing management layers and streamlining the organization is always under review for additional improvements.

Moreover, the Training Center and Human Resources have determined key competencies that are critical for various types of positions and has made progress in developing training to address these competencies. The instructions for developing individual development training plans (IDPs) include a requirement for addressing core competencies. All agency staff completed these plans in April 2008, and they have since been updated. The Training Center curriculum is under ongoing review to ensure that it matches with the developmental needs of the workforce. The *Strategic Human Capital Plan* offers insight into how the NTSB develops its training approaches consistent with government-wide best practices advocated by OPM. Moreover, the *Strategic Training & Development Plan*, which will be published in 2010, includes specific training strategies as well as performance measures to gauge progress against each course of action for completion of training objectives.

Finally, as reported by GAO in the October 2009 testimony, the NTSB has undertaken several initiatives to create a stronger, more diverse pool of candidates for positions. The agency's approach for leveraging diversity and strengthening its workforce includes the continuation of agency training programs such as the Executive Leadership Program, the Management Development Candidate Program, and the Upward Mobility Program; all of which are designed to ensure equal opportunity and promote the most diverse workforce possible. In addition, the agency has published the *NTSB Diversity Resources Guide*, a recruitment handbook for the agency that has specific strategies and guidance to ensure the most diverse pool of applicants for external job vacancies as well as for positions at the senior executive level. In 2010, the NTSB will charter and implement a diversity task force, a top-leadership-sponsored effort that will formulate additional strategies and action steps to promote a highly diverse and well-qualified workforce.

Accident Investigation, Mission, and Safety Studies Recommendations

No.	GAO Recommendation	GAO Assessment Apr. 2008	GAO Assessment Oct. 2009	NTSB Assessment Dec. 2009
1	**Accident Selection** Develop agency orders for all modes articulating risk-based criteria for selecting which accidents to investigate	◖	●	●
2	**Recommendation Close-out** Computerize related documentation and use concurrent reviews	◖	◖	◖
3	**Report Development** Identify better practices in the agency and apply them to all modes	◖	◖	◖

4	**Safety Studies** Increase utilization of safety studies	○	◖	◖

Discussion

Since the GAO report was finalized in April 2008, we have developed and published formal risk-based launch criteria for all modes of transportation. In addition, we developed an agencywide information platform based on Microsoft Sharepoint® that increases the use of technology and streamlines both the recommendation close-out and report development processes. Finally, we have increased the utilization of safety studies, and expect to publish two safety studies during fiscal year 2010.

Training Center Utilization Recommendations

No.	GAO Recommendation	GAO Assessment Apr. 2008	GAO Assessment Oct. 2009	NTSB Assessment Dec. 2009
1	Maximize the delivery of core investigator curriculum at the Training Center	◖	◖	◖
2	Develop plans to increase utilization of the Training Center	◖	●	●

Discussion

Since the GAO report was issued, the NTSB has taken a number of additional steps to increase the utilization of the Training Center. The NTSB entered into an agreement with the Federal Air Marshalls Service to sublease a majority of the first floor of the building. Since that time, an additional rental agreement to the Department of Homeland Security for the second floor has taken place. With these two large agreements, other smaller short-term rentals, and additional classroom offerings; the Training Center has increased its overall utilization rate from all rental and classroom sources to 80 percent during 2009. For additional information on the NTSB's approach to managing the Training Center, see the Training Center section of this report.

Information Technology and Privacy Recommendations

No.	GAO Recommendation	GAO Assessment Apr. 2008	NTSB Assessment Dec. 2009
1	**FISMA** Ensure that the CIO monitors all key corrective actions and provides the necessary funding and human resources	◖	◖

2	**Access Controls** Remove access authorities to NTSB systems from personnel who are no longer NTSB employees	●	●
3	Maintain documentation supporting the initial access granted to a user	◖	●
4	Develop detailed operational procedures to guide system security officers and system owners in the process of recertifying users	○	●
5	Develop a process to properly analyze and complete the annual recertification of users' access authorities	○	●
6	Implement a control to automatically suspend an account after a period of non-use	○	●
7	**Privacy Act** Update the plan of action milestones to reflect the current status of the NTSB's actions to address Privacy Act and OMB memoranda	●	●
8	Comply with requirements of the Privacy Act and policy set forth by OMB memoranda	○	●

Discussion

In the area of compliance with the Federal Information Security Management Act (FISMA), the NTSB remains on progress with respect to completion of current corrective actions and providing necessary funding and human resources consistent with overall agency resources. FISMA scores continue to improve across the board and the most recent report indicated the NTSB's best performance to date with respect to FISMA compliance. In addition, the NTSB has fully addressed the issues of maintaining supporting documentation of the initial access granted to users, providing operational guidance to system owners and system security officers to conduct the annual recertification of user access authority, automatically suspending accounts after a period of non-use and removing authority to NTSB systems for employees that have left the Safety Board. The NTSB has made significant progress in the area of privacy. The agency published a comprehensive and fully revised set of Systems of Records Notices in the Federal Register during the summer of 2008, and the NTSB also finalized and published eight agencywide procedures documents related to privacy. Further, the agency developed an online privacy awareness training course, and the entire workforce successfully completed the new training.

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