

**Testimony of Mark V. Rosenker**  
**Chairman**  
**National Transportation Safety Board**  
**before the**  
**Committee on Appropriations**  
**Subcommittee on Transportation, HUD, and Related Agencies**  
**U.S. Senate**  
**April 19, 2007**

Good morning Chairman Murray, Ranking Member Bond, and Members of the Subcommittee. Thank you for allowing me this opportunity to present testimony on behalf of the National Transportation Safety Board regarding the agency's appropriation needs for fiscal year 2008. It is my privilege to represent an agency that is dedicated to the safety of the traveling public.

The NTSB is an independent Federal agency charged by Congress with investigating every civil aviation accident in the United States and significant accidents in other modes of transportation — railroad, highway, marine, and pipeline, and issuing safety recommendations to prevent future accidents. The Safety Board also oversees the assistance to victims and their families following commercial aviation accidents and also acts as the Court of Appeals for airmen, aviation mechanics and mariners whenever certificate action is taken by the Administrator of the Federal Aviation Administration (FAA) or the U.S. Coast Guard Commandant or when civil penalties are assessed by the FAA.

Since its inception in 1967, the Safety Board has investigated about 130,000 aviation accidents and thousands of surface transportation accidents. In addition, the Safety Board has issued more than 12,600 safety recommendations in all modes of transportation with an 82 % acceptance rate for our recommendations.

Let me say that our Nation's transportation system is *very* safe, and the men and women who work hard every day to operate the transportation system and keep it safe have our sincere admiration and appreciation. That said, the Safety Board is committed to the idea that there is always room for improvement. For this reason, we conduct careful, scientific investigations of transportation accidents to determine how the transportation system can be made even safer.

This winter, the Board held public meetings (known as "Sunshine" meetings) to complete our investigations of the motorcoach fire on Interstate 45 near Wilmer, Texas during the Hurricane Rita evacuation; the 2005 head-on collision of two freight trains in Anding, Mississippi; the crash of Pinnacle Airlines flight 3701 at Jefferson City, Missouri, and the 2006 engine room fire aboard the commuter ferry *SPV Massachusetts* in Boston Harbor. Also, we held Sunshine meetings for the crash of Circuit City Cessna 560 at Pueblo, Colorado and the Bali Hai Bell 206 and Heli-USA Aerospatiale AS350 helicopter accidents in Hawaii.

On March 27, 2007, we held a public forum on runway incursions, a particularly important item on our list of Most Wanted Transportation Safety Improvements. In the months ahead, my colleagues and I will hold Sunshine meetings to conclude several important investigations, including the October 2006 accident that killed New York Yankees pitcher Cory Lidle and a pilot-rated passenger; the Chalkø Ocean Airways seaplane accident that killed 20 people in Miami, Florida; and another the derailment of a Chicago Transit Authority Blue Line train; and our investigation of last yearø tunnel ceiling collapse of the I-90 connector tunnel that killed a motorist in Boston, Massachusetts.

As required by international agreement, the Board often sends investigators to other countries to investigate aviation accidents. When a U.S.-manufactured, U.S.-registered, or a U.S.-operated aircraft is involved in an accident in a foreign country, the Safety Board leads the U.S. participation in the investigation. Each year, our investigators participate in about 20 major foreign aviation accidents. For example we are participating in an investigation involving the September 29, 2006 midair collision in Brazil between a Boeing 737-800 operated by Gol airlines and an Embraer Legacy 600 business jet owned and operated by Excelair of Long Island, New York. And since the beginning of the calendar year, 3 Boeing 737s have crashed in Indonesia. Of those 3 airplanes, 2 were being operated by Adam Air, and 1 by Garuda airlines. Because the airplanes involved in these accidents were certificated and manufactured in the United States, we are leading the U.S. efforts to investigate these accidents.

## **SAFETY ISSUES**

I would like to begin by discussing safety issues that relate to the transportation modes that are represented here today.

Last year, the Safety Board testified before the House Committee on Energy and Commerce, Subcommittee on Energy and Air Quality, regarding the safety benefits of excess flow valves (EFV) on natural gas distribution pipelines. EFVs are an effective way to save lives and protect property, and the Safety Board has long advocated their use. The Board is pleased with the passage of legislation last year mandating the installation of EFVs on natural gas pipelines serving single-family residential housing, and we look forward to the safety improvements that will result.

As in other transportation modes, the Board has called upon the Pipeline and Hazardous Materials Safety Administration to set working hour limits for pipeline controllers. Such limits, if based on fatigue research, circadian rhythms, and sleep and rest requirements, could reduce the number of accidents caused by human fatigue.

The Safety Board has recently addressed a number of important highway safety issues. These include highway median barriers, toll plaza designs, collision warning systems, vehicle incompatibility, highway construction oversight, cell phone use by bus drivers, and motorcoach occupant protection.

On March 2, 2007, our investigators were at the scene of a motorcoach accident in Atlanta that involved a baseball team from Bluffton University in Ohio. The motorcoach took an exit ramp from the left lane, failed to stop at the end of the exit ramp, collided with and overrode a concrete bridge rail, and fell 30 feet to the highway below. Seven occupants were killed. That investigation continues. Because some of the occupants were ejected or partially ejected from the vehicle, safety issues in the investigation will likely include topics such as improved occupant protection, window glazing, emergency exit design, and stronger motorcoach roofs. All these topics have been addressed in prior safety recommendations to the National Highway Traffic Safety Administration (NHTSA).

Additionally, on September 23, 2005, a fire engulfed a motorcoach being operated by Global Limo Inc. The bus was carrying 44 residents and staff from an assisted-living facility in Bellaire, Texas away from the predicted path of Hurricane Rita near Houston, Texas, many of which were not ambulatory. Twenty-three elderly passengers were unable to escape the fire and died.

Our investigation revealed that Global Limo Inc. was in violation of several safety regulations before the accident. For example, the company did not ensure that their drivers were properly licensed to drive motorcoaches and also did not retain vehicle maintenance and repair records as required by Federal Motor Carrier Safety Regulations (FMCSRs). In addition, there was no maintenance program to properly service the vehicle. The lack of such a program directly contributed to this catastrophic fire and loss of life.

Also contributing to the accident was the Federal Motor Carrier Safety Administration's (FMCSA) ineffective compliance review system, which provided inadequate safety oversight of this passenger motor carrier. The Board concluded that FMCSA's current process does not effectively identify unsafe motor carriers and prevent them from operating. In fact, despite many driver and vehicle safety violations, FMCSA had rated Global as "satisfactory" prior to the accident. The Board reiterated its long-standing recommendation to FMCSA to change the safety fitness rating methodology so that either adverse vehicle or driver performance problems alone are sufficient to result in an overall unsatisfactory rating for a carrier.

As a result of its investigation, the Board made a number of recommendations to the NHTSA to develop a fire protection standard for motorcoach fuel systems, and develop fire detection systems to monitor the temperature of wheel well compartments. We also asked FMCSA to continue to gather and evaluate information on the causes, frequency and severity of bus and motorcoach fires, and conduct ongoing analysis of that data. Finally, the Safety Board asked NHTSA to evaluate motorcoach emergency evacuation designs by conducting simulation studies and evacuation drills.

In another recently completed accident investigation, the Board focused on cell phone use by bus drivers. On the morning of November 14, 2004, a motorcoach was traveling on the George Washington Memorial Parkway in Alexandria, Virginia, as it

approached an overpass. The bus driver passed low clearance warning signs, and did not move to a lane with adequate clearance. The bus struck the underside of the bridge. The bus driver was talking on a hands-free cellular telephone at the time of the accident. Of the 27 passengers, 10 received minor injuries and 1 sustained serious injuries.

The Safety Board believes that, except in emergencies, operators of commercial passenger-carrying vehicles and school busses should be prohibited from using cellular telephones while transporting passengers, and has called upon FMCSA to publish regulations to that effect. The Safety Board has also made significant progress in the states on child booster seats, primary seat belt laws, teen driving and hard-core drinking driving.

The Safety Board recently testified before the House Committee on Transportation and Infrastructure regarding the reauthorization of the Federal Railroad Administration (FRA). Among the issues the Board has been particularly concerned about is human fatigue, which has been identified as a safety issue in many railroad accidents over the years, including the June 28, 2004, accident in Macdonia, Texas. That accident resulted in the deaths of 3 people from chlorine gas inhalation. Many accident investigations have identified human performance failures related to fatigue, medical conditions such as sleep apnea, the use of cell phones, the use of after-arrival track warrants in dark territory, loss of situational awareness, and improperly positioned switches as causal to railroad accidents. Human fatigue was on the Safety Board's Most Wanted List of Safety Recommendations but removed when the FRA stated it did not have the statutory authority to regulate hours of service. The Safety Board has testified before Congress that the FRA should be given the statutory authority to regulate these hours of service. We understand the FRA is seeking such authority.

There are technological solutions that have the potential to reduce the number of serious train accidents by providing redundant systems to protect against human performance failures. One of these technologies is positive train control (PTC). The implementation of PTC systems has been on the Board's Most Wanted list for 17 years. Its objective is to prevent train collisions and over-speed accidents by requiring automatic control systems to override mistakes by human operators. While there has been some progress by some railroads, we note that PTC systems are needed on railroad systems across the entire United States.

As in other transportation modes, hours of service regulations is also a safety issue for marine. The Board called upon the U.S. Coast Guard (Coast Guard) to establish scientifically based hours of service regulations for maritime workers. The Coast Guard has sponsored research in fatigue and developed its Crew Endurance Management (CEM) system based on its research. The CEM system helps manage the risk factors that can lead to human error and performance degradation in maritime work environments.

Additionally, the Coast Guard and Maritime Transportation Act of 2004 allows the Coast Guard to set maximum hours of service for towing vessel operators based on the results of a demonstration project using the CEM system on towing vessels. The

demonstration project was completed in 2005, and a report of the results was submitted to Congress a year ago. The report revealed promising results in terms of reducing fatigue-related risks. In addition, a Commandant Instruction issued in March of last year states that "Commanding officers and officers-in-charge shall...implement a CEM program to manage endurance risk at their unit." The Safety Board would like to see the Coast Guard take the remaining action on this recommendation by issuing formal fatigue management regulations for all domestic operators.

Finally, I would like to address several important aviation safety issues, including runway incursions, fuel tank flammability, icing and flight recorders.

In March 1977, in what remains the world's deadliest aviation accident, two passenger jumbo jets collided on a runway at Tenerife, Canary Islands. That accident resulted in the deaths of 583 passengers and crew. The deadliest U.S. runway incursion accident was a collision between a USAir 737 and a Skywest Metroliner commuter airplane at Los Angeles International Airport in February 1991, killing 34.

Most recently, in July 2006, at O'Hare International Airport, a United 737 passenger jet and an Atlas Air 747 cargo airplane nearly collided. The 747 had been cleared to land and was taxiing on the runway towards the cargo area when the 737 was cleared to take off on the intersecting runway, over the 747. The pilot of the United 737 passenger jet took evasive action by lifting off early. A collision was avoided by less than 200 feet.

A total of 21 runway incursion recommendations have been on our Most Wanted List of Safety Recommendations; only one recommendation remains open. That recommendation urges the FAA to "require, at all airports with scheduled passenger service, a ground movement safety system that will prevent runway incursions; the system should provide a direct warning capability to flight crews. In addition, demonstrate through computer simulations or other means that the system will, in fact, prevent incursions."

The FAA has taken action to inform pilots and controllers of potential runway incursions, improve airport markings, and install the Airport Movement Area Safety System (AMASS) and Airport Surface Detection Equipment Model X (ASDE-X). These systems are an improvement, but are not sufficient as currently designed to prevent all runway incursions.

The runway incursion rate in the United States has not appreciably changed over the past 4 years, and stands at about 5.2 runway incursions per 1,000,000 tower operations, despite these improvements. The issue is one of reaction time. Safety Board investigations have found that AMASS is not adequate to prevent serious runway collisions, because too much time is lost routing valuable information through air traffic control. In recent incidents, AMASS did not alert controllers in time to be effective, and the situations were instead resolved by flight crew actions that sometimes bordered on heroics, or luck.

On Tuesday, March 27th, the Safety Board held a public forum on runway incursions. Thirty years after the terrible accident in Tenerife, runway incursions remain a major safety issue in aviation.

Since 1989, aircraft fuel tank explosions have resulted in 346 fatalities. On July 17, 1996, Trans World Airlines, Inc. (TWA) flight 800, a Boeing 747-131, crashed in the Atlantic Ocean near East Moriches, New York. All 230 people on board were killed. The Safety Board found that the cause of the accident was an explosion of the center wing fuel tank, resulting from ignition of the flammable fuel/air mixture inside the tank. The source of ignition for the explosion could not be determined with certainty; however, the source was most likely a short circuit of electrical wiring associated with the fuel quantity indication system.

The investigation of the TWA flight 800 accident and assistance on 2 fuel tank explosions overseas found that a fuel tank design and certification philosophy that relies solely on the elimination of every ignition source, while accepting the existence of fuel tank flammability, is fundamentally flawed because experience has demonstrated that it is impossible to eliminate all potential ignition sources. Further, the risk of explosion exists for all fuel tanks, not just center or fuselage fuel tanks. The Safety Board believes that operating transport-category airplanes with flammable fuel/air vapors in fuel tanks presents an avoidable risk of explosion. Our recommendation asks the FAA to give significant consideration to the development of airplane design modifications, such as nitrogen-inerting systems and the addition of insulation between heat-generating equipment and fuel tanks. Appropriate modifications should apply to newly certificated airplanes and, where feasible, to existing airplanes. In 2002, the FAA developed a prototype inerting system that could be retrofitted into existing airplanes.

The comment period on the FAA's notice of proposed rulemaking (NPRM) for the flammability reduction installation is now closed and the Board is awaiting a final rule.

Another issue concerns the safety of aircraft operating in icing conditions. Aircraft icing issues have been on the Safety Board's Most Wanted List since 1997. The recommendations to the FAA include the need to expand the icing certification envelope to include freezing drizzle/freezing rain and mixed water/ice crystal conditions, as necessary; revise regulations to ensure that airplanes are properly tested for all conditions in which they are authorized to operate, or are otherwise shown to be capable of safe flight into such conditions; conduct additional research with the National Air and Space Administration (NASA) to identify realistic acceptable ice accumulations; and ensure turbopropeller-driven airplanes meet the requirements of the revised icing certification standards.

Aircraft icing is a threat to both general and commercial aviation pilots. As recently as January 2, 2006, an American Eagle Saab-Scania SF340 encountered icing conditions during the en route climb after departure from San Luis Obispo, California.

The airplane departed controlled flight at an altitude of about 11,500 feet mean sea level and the flight crew recovered control of the airplane at about 6,500 feet. There were no injuries to the 29 persons on board and the airplane did not sustain any damage. The airplane rolled to 86° left wing down and then 140° right wing down. The loss of control lasted about 50 seconds, and the airplane lost 4,000 feet.

A final issue affecting aviation safety is that of flight recorders. The Safety Board has investigated numerous accidents in which turbine-powered aircraft did not have either a cockpit voice recorder (CVR) or a flight data recorder (FDR) at the time of the accident. One such investigation involved a crash in Minnesota that killed 8 people including Senator Paul Wellstone.

The Safety Board has investigated several events in which the aircraft was not required to be equipped with a flight recorder, but a CVR was installed voluntarily on the aircraft. Data from these CVRs has provided invaluable information during its investigations. Specifically, in the initial phase of an investigation, CVR data may reveal operational issues that are not readily apparent from the physical evidence found at an accident site, enabling the Safety Board to narrow the focus of its investigation and issue safety recommendations quickly to prevent similar accidents. In some instances, CVR data may be the sole source of evidence for a probable cause determination.

Considering the number of accidents occurring in smaller aircraft, the Safety Board has identified the need to install crash-protected recording devices on all turbine-powered aircraft. Despite the clear advantages of requiring both a CVR and an FDR on smaller aircraft, the Board recognizes the economic impact and consequently has proposed that all smaller turbine-powered aircraft be equipped with a single crash-protected recorder ó a video image recorder ó which is less expensive than two recorders. Such recorders obtain not only audio information like that from CVRs, and event data like that from FDRs, but also information about the environment outside the cockpit window.

## **NTSB APPROPRIATIONS**

Mr. Chairman, Ranking Member, and Members of the Committee, I have been talking about the safety of our Nation's transportation system. As I said, it is for the most part a safe and effective system. There are improvements that can be and should be made, but the American people already have every right to feel confident in our transportation system.

One of the reasons for this confidence is a small but very effective independent Board that was created 40 years ago this month by the U.S. Congress. The Congress believed that a healthy, vital transportation system was important to the American people and to all aspects of its economic system.

This Board is now recognized as a leader in accident investigation and transportation safety, both here and around the world. The NTSB has been asked to

assist on hundreds of foreign accident investigations and has been the model for similar agencies in several other countries as they improve the oversight and safety of their transportation systems.

I think that you can tell I am very proud to serve as the Chairman of the National Transportation Safety Board. I am proud of the work that we do; I am proud of what the Board has accomplished, and I am also very proud to work with the dedicated men and women of the agency. I have said this before, and I will say it again, "They are the best of the best."

During the last two years, my colleagues and I have made a number of improvements at the Safety Board. We have energized and involved the management team that now leads the Board's strong pool of technical professionals. Recently, with input from all ranks, that team produced a new Strategic Plan for the agency. Each executive now has a performance plan that is linked to our Strategic Plan. The last two years have brought significant improvements to the Safety Board, and we want to continue that positive momentum, but we will need your help and your support to do so.

This agency has measurably improved its efficiency and throughput during the last two years. In fiscal year 2005, the Members of the Safety Board received 120 voting items from the staff. In fiscal year 2006, my colleagues and I received 168 such items (an increase of 40%), and the staff has presented almost 100 voting items so far in the first half of fiscal year 2007. In fiscal year 2005, the Board considered 12 accident reports and studies and we issued 120 safety recommendations. In fiscal year 2006, we considered 21 accident reports and studies, and we issued 167 recommendations. So far this fiscal year, we have considered 12 accident reports and we have issued over 70 safety recommendations. What's more, since the beginning of fiscal year 2005, the Board has held 9 public hearings, forums, and symposiums on such topics as runway incursions, motorcycle safety, and positive train control.

Better management has made our agency more efficient during a time of declining resources. The number of products we produce has increased, but our staff is now working at full capacity. Of course, this is a good thing, but there is a troubling side to this. With an investigative staff stretched as it is, we will not be well positioned to conduct multiple, simultaneous complex investigations.

Our staffing numbers have been declining over the last 5 fiscal years. In fiscal year 2005, the Safety Board received an appropriation of just over \$76M, which enabled us to fund 418 FTEs. In fiscal year 2006, after rescission, the Board's appropriation was less than the year before. That year, in order to absorb the increased cost of pay raises, benefits and other costs, we were forced to allow attrition to shrink our ranks to 387 FTEs, a reduction of 31 positions.

To help us better manage this drop, we created a human capital plan. This plan allowed us to focus on hiring investigators to fill our most critical needs. The Safety

Board has carefully managed its resources, and ó like many agencies ó has done more with less, but there is a point where we will simply stretch staff too thin.

This year, the Safety Board received an appropriation of \$79.3M under a continuing resolution. This represents a \$3.3M increase over the prior year, and I assure you we are very grateful to this Subcommittee for providing us such an increase because we entered the year in a critical condition. Although this funding level will not permit us to grow beyond 396 FTEs this fiscal year, it will permit us to hold steady through the year.

About 90% of the Board's annual budget is spent on salaries, benefits and fixed expenses such as rent and telecommunications. That leaves the remaining 10% available for mission related activities, travel, training, equipment and information technology. Each year, due to pay raises and inflation, the cost of agency salaries and fixed expenses grows by more than \$3M, regardless of our appropriation level.

The President's budget requests \$83M for the Safety Board for fiscal year 2008. However, our best estimates indicate that our salaries and fixed costs will grow by a little over \$3.6M in fiscal year 2008. Consequently, \$83M will enable us to fund those increases, but we will need to hold staffing at the current level for yet another year under such a budget.

Most people believe that the Safety Board is much larger than it actually is. They think that 1,000 or 2,000 people would be necessary to do all of the work that we do. So, they are shocked when they learn the Board has fewer than 400 people ó but 400 very dedicated people. Although these people are willing to work very long hours at accidents and keep their skills current, there is only so much they can do.

As I said earlier, most of our funding is used to pay personnel, and what we need now is personnel. The Board needs people with particular and special skills to keep up with the new technologies that are constantly changing and developing. For example, until fairly recently, all planes were made of aluminum. Now, new airliners are made with composite materials, the failure of which requires different testing methods and investigative procedures. The Safety Board needs additional investigators to handle the possibility of increased accidents after the introduction of a projected large number of very light jets (VLJ) that are expected to enter the service over the next few years. The introduction of VLJs into the national airspace system may require a significant use of investigative resources. Although small, the VLJs and their operation are complex and will require essentially a full team of investigators to address issues that may arise in composites, turbine engines, single pilot operations, Part 135 operations, FAA oversight and air traffic control. Special attention is also given to new types of aircraft as they enter the commercial fleet. Further, we have been without a senior fire and explosion investigator for over 4 years, leaving us extremely vulnerable to inadequate coverage in any fire related investigation. Additionally, we cover the entire country with only one fully staffed railroad Go-Team.

The Safety Board is a unique agency, and many of our investigators are highly specialized. They are not interchangeable. Someone who is trained in aircraft jet engines does not have the skills required to investigate the operation of railroad signals. Not only must we hire specialists with expert-level skills, new specialists must work with the Board for some time to fully understand the complexities of our accident investigations. When we are not able to hire, we lose that educational process that is so very important to new investigators. With approximately one-third of our staff eligible to retire within the next five years, it is essential that we take the proper steps now to replace these highly skilled, technical and experienced professionals.

In closing, I want to assure the Members of this Subcommittee that my fellow Board Members and I are most appreciative of your support this fiscal year and in prior years. As you begin to make appropriations decisions for the coming year, we hope you will keep in mind the importance of this small and effective agency to the safety of our Nation's transportation system.

I would be delighted to respond to any questions you may have.