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Testimony of

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before the

U.S. House of Representatives

Transportation & Infrastructure Subcommittee on Aviation

Runway Safety

February 13, 2008

Good morning, Chairman Costello and Congressman Petri. Thank you for the opportunity to testify today on Runway Safety. I am Phil Boyer, President of the Aircraft Owners and Pilots Association (AOPA).

AOPA is a not-for-profit individual membership organization of more than 415,000 pilots. AOPA's mission is to effectively serve the interests and needs of its members as aircraft owners and pilots and establish, maintain, and articulate positions of leadership to promote the economy, safety, utility, and popularity of flight in general aviation aircraft. Representing two thirds of all pilots in the United States, AOPA is the largest civil aviation organization in the world.

As head of AOPA, I also serve as president of the AOPA Air Safety Foundation (ASF), a tax-exempt, non-profit 501(c)(3) educational organization supported by generous donations from individual donors, companies in the aviation industry as well as government grants. ASF materials are available online to all pilots, not just AOPA members. The ASF is the principal nongovernmental general aviation accident prevention, safety education, instructor training, and research organization. ASF management spends considerable time serving on Federal Aviation Administration (FAA), National Aeronautics and Space Administration (NASA), the National Weather Service (NWS) and special committees to provide technical and educational expertise from a general aviation perspective. The ASF is a powerful vehicle for carrying the message of improving general aviation safety to pilots across the country.

The United States is currently experiencing the safest period in aviation history. The December 2007 AOPA Air Safety Foundation *Joseph T. Nall Report*, using data from government sources, shows general aviation accidents continue on a downward trend. The number of accidents per 100,000 flight hours decreased from 7.19 in 1997 to an all-time low of 6.32 in 2006, while the fatal accident rate dropped 7.4 percent during the same period. However, we cannot rest on our laurels. Safety requires constant vigilance. And this is evident in the area of runway incursions.

In September 2007, the FAA released its *Runway Safety Report* examining runway incursions at towered airports between FY2003 and FY2006. The report states that 72 percent of all runway incursions (937 of 1306) involved a general aviation aircraft but that general aviation only accounted for 55 percent of National Airspace System (NAS) activity. However, we looked behind those numbers and determined that only 44 percent (580 of the 1306) of all incursions were pilot deviations involving a general aviation aircraft. And, of those 580 pilot deviations, the FAA classified 92 percent as less severe (Category C and D). While the FAA report notes the rate of incursions has remained relatively constant, the November 2007 Government Accountability Office (GAO) *Aviation Runway and Ramp Safety* report notes that preliminary FAA data for FY2007 indicate a disturbing upward trend.

Clearly, we have a problem. And, the "we" refers to the airlines, general aviation, the FAA, the air traffic controllers, the airports -- every member of the aviation community. The number of reported incursions may be low when compared to the total number of

operations conducted each year, but the potential for a catastrophic accident, makes runway safety an area of special concern for the aviation community. The potential for a runway incursion will exist as long as aircraft are operated. Unfortunately, there is no quick fix or easy solution. But one thing is apparent, what has been done and what is being done is not good enough.

FAA Leadership

The November 2007 Government Accountability Office (GAO) *Aviation Runway and Ramp Safety* report states "FAA's Office of Runway Safety has not carried out its leadership role." While runway safety is a shared responsibility, the AOPA Air Safety Foundation believes the FAA must once again make it a national priority and a first step would be to have the Director of the Office of Runway Safety reporting directly to the Administrator.

A cursory look at history shows that during times of inadequate leadership from the FAA, the number of runway incursions increases. In 1990, an all-time high of 281 runway incursions occurred and the National Transportation Safety Board (NTSB) added the prevention of runway incursions to its Most Wanted Safety list. Under FAA leadership and coordination, progress was made and 1993 marked a low with 186 incursions. However, we quickly saw FAA's focus and resources shift to other priorities and the result was a dramatic increase in runway incursions through the mid-90s.

Back as a top priority, in 1999, the FAA announced a new runway safety initiative, created a new program office, reestablished runway incursion action teams, held regional workshops, and created new pilot programs. A great deal of time, energy and resources was devoted to runway safety. Runway safety was an industry government partnership, and the AOPA Air Safety Foundation worked very closely with the FAA's Office of Runway Safety on training, outreach, and education. It was a cooperative and effective campaign. Progress was being made but unfortunately FAA's attention was once again diverted and existing partnerships dissolved.

As the GAO report noted, the FAA's Office of Runway Safety has not updated the national runway safety plan since 2002 despite policy that it be upgraded every two to three years. During this time the office was without a permanent director for two years and its staff was reduced by almost half. With the FAA forecasting an increase in the number of operations over the next decade, the AOPA Air Safety Foundation believes the FAA needs to once again make runway safety a national priority. Long-term, sustainable improvements in runway safety require constant, consistent and continual FAA leadership.

Pilot Training and Regulation

All pilots must pass a written FAA computerized knowledge test, and pass an oral and practical test (check ride) administered by an FAA Designated Flight Examiner. The FAA Private Pilot Airplane Practical Test Standards (PTS) manual outlines the standards used by

FAA inspectors and designated pilot examiners when conducting private pilot airplane practical tests.

Pilots are required to demonstrate proficiency in airport and traffic pattern operations, including operations at controlled airports, radio communications, and collision avoidance precautions. Pilots must exhibit knowledge of the elements related to safe taxi procedures and compliance with airport/taxiway markings, signals, air traffic control clearances and instructions. The PTS also states that examiners shall place special emphasis upon areas of aircraft operations considered critical to flight safety including operations on the ground and runway incursion avoidance.

Pilots are also required to undergo a biannual flight review conducted by a flight instructor. Flight instructors use the same test standards (PTS) and special focus areas that are used to test new pilots. Previous studies indicate there is no correlation between runway incursions and pilot certificate type. In addition, incursions are not related to flight time or pilot experience. Virtually all runway incursions are inadvertent and unintentional. It can happen to any pilot at any time because of confusion, ignorance, inattention or complacency.

General operating and flight rules for private pilots are outlined in the Federal Air Regulations (FAR). In the case of runway incursions, pilots are most often cited for violating *FAR 91.123 Compliance with ATC clearances and instructions* and the "catch-all" *FAR 91.13 Careless or reckless operation.* Under the Aeronautical Information Manuel (AIM), when air traffic control clears an aircraft to "taxi to" an assigned takeoff runway, in absence of holding instructions, that aircraft is authorized to "cross" all runways that the taxi route intersects. However, the aircraft is not authorized to taxi onto or cross the assigned takeoff runway at any point. This situation creates significant confusion.

The National Transportation Safety Board's (NTSB) runway incursion prevention recommendations dating back to 2000 called for the FAA to require that, when aircraft need to cross multiple runways, air traffic controllers issue an explicit crossing instruction for each runway. While this will increase the workload on the air traffic controllers - and we are sympathetic to that concern - it will improve understanding, allow for better control, and reduce the number of incursions. The AOPA Air Safety Foundation recommends this be evaluated and carefully studied to determine whether it is feasible to require a specific air traffic control clearance to cross all runways.

When a pilot deviation occurs, the pilot is contacted by air traffic control and the incident is reported to the FAA Flight Standards District Office. The pilot is then contacted and interviewed by an FAA inspector. The outcome could be remedial training, civil penalties or further enforcement action resulting in certificate suspension or revocation. Regardless, the incident is a blemish on the pilot's record.

Additional pilot training standards and/or additional FAA regulations are not the answer to reduce runway incursions. What is needed is to focus resources on the behavior and better application of the existing regulations. Often we know what happened, but we need to

determine "why." In order to help identify factors and events that contribute to runway incursions, the AOPA Air Safety Foundation encourages pilots to file a report with National Aeronautics and Space Administration's Aviation Safety Reporting System (ASRS). Reports made under the ASRS are confidential and anonymous. The data is compiled and used by the FAA and industry in developing educational and training initiatives to reduce runway incursions.

The AOPA Air Safety Foundation also strongly supports the FAA's Runway Incursion Information Evaluation Program (RIIEP). Under the program, pilots involved in runway incursions are interviewed by aviation safety inspectors to help identify the cause(s) of incursions so proper risk reduction strategies can be implemented. Pilot participation in the program is voluntary but likely will result in no enforcement action against the pilot for the incident in question. RIIEP was created in March 2000, renewed in July 2004 and again in July 2006. The current program expires in July 2008, and the AOPA Air Safety Foundation encourages the FAA to continue the program.

However, according to the November 2007 Government Accountability Office (GAO) *Aviation Runway and Ramp Safety* report, only 19 percent of pilots involved in incursions participated in the program between 2004 and 2006. The AOPA Air Safety Foundation considers RIIEP to be a valuable program and will continue to actively promote pilot participation. The GAO report also questions what, if anything, the FAA has done with the data collected. The AOPA Air Safety Foundation is willing to work with the FAA to ensure the data collected is being analyzed and used to implement cost-effective corrective measures in a timely manner.

Airport Infrastructure

Runway incursions have a variety of causes and are often the result of a combination of factors. The best analogy is to the roads. When there is limited visibility, poor lighting, bad weather, inadequate paint lines, confusing signs or a combination of these, there is a greater risk of an accident. In this area, runway incursions can be reduced with relatively inexpensive, low technology methods -- better markings, more reflective paint, lights and signage.

The November 2007 Government Accountability Office (GAO) *Aviation Runway and Ramp Safety* report cites a survey of experts who agreed and ranked the following among the three most effective FAA actions to address runway incursions:

1. enhancing airport markings and lighting;
2. enhancing airport signage; and
3. approving perimeter taxiways that provide aircraft with access to gates without crossing runways.

These activities can be funded through the FAA's Airport Improvement Program (AIP). AIP grants play a critical role in funding airport safety projects. They help fund airfield reconfigurations and the construction of end-around taxiways designed to reduce the number and severity of runway incursions. These projects, at some of the nation's largest

and busiest airports, eliminate the need for an aircraft to cross an active runway in order to reach its gate. According to the FAA, more than $170 million in AIP grants were awarded to implement recommendations made by Runway Safety Action Teams in FY2005 and FY2006.

Yet, for the past two fiscal years, the Administration's budget request has proposed to cut nearly a billion dollars from this vital program. And last week, we were again disappointed to see that the Administration's FY09 budget request for AIP is $765 million below the FY08 enacted level. AOPA strongly supports robust AIP funding. We commend Congress for its wisdom in rejecting these shortsighted cuts and specifically thank this Subcommittee for its leadership in providing $15.8 billion for AIP in your bill, the FAA Reauthorization Act of 2007 (H.R. 2881).

Unfortunately, FAA reauthorization is stalled in the Senate and we are currently operating under an extension that does not include AIP contract authority. While the FY08 Consolidated Appropriations Act provides $3.5 billion in obligation limitation for AIP, the FAA lacks the authority to access the money. With each passing day, important airport safety projects are being delayed. For example, Centennial airport near Denver, Colorado, cannot complete the reconstruction of taxiway Charlie because they are waiting to receive $2.7 million in FY08 AIP grants. This project provides new connections to the runway that improve surface flow and will reduce the potential for aircraft on aircraft incursions.

The current FAA extension expires on February 29, 2008. As Congress contemplates future action, AOPA encourages the Subcommittee to support a 60 to 90 day extension that includes AIP contract authority. We believe that a multi-year FAA reauthorization bill is not only obtainable but also essential to FAA's modernization efforts aimed at improving system safety and efficiency. AOPA is committed to working with the Subcommittee, Congress, the FAA and the aviation community toward that goal.

Ongoing Pilot Education and Outreach

AOPA through the AOPA Air Safety Foundation plays a vital role in improving general aviation safety. Our ongoing campaign in the area of runway safety includes the following activities.

1. Airport Taxi Diagrams

Instrument pilots have access to airport taxi diagrams because they are included as part of the instrument approach procedure charts. However, the only way for visual flight rule pilots to obtain these airport taxi diagrams was to purchase an instrument flight rule chart subscription.

In an effort to reduce runway incursions and improve surface navigation, the AOPA Air Safety Foundation (ASF), in partnership with the FAA Runway Safety Program Office, began providing airport taxi diagrams for the busiest airports in the United States. Today, airport diagrams are available for over 330 of the busiest airports. These airport diagrams are free to the public, available online (www.aopa.org/asf/publications/taxi/) and are

updated regularly, so pilots can download the most current diagram(s). All pertinent information about the airport is provided, including elevation, navigation aids and communications frequencies, as well as a small diagram of the runway, taxiways and ramps.

One area for improvement is for the FAA to identify problem areas otherwise known as "hot spots" on charts. The September 2007 *Runway Safety Report* states the FAA developed a definition of a "hot spot" that went through International Civil Aviation Organization (ICAO) final review at the end of 2006 for applicability in November 2007. The report states that "hot spots" will be added to National Aeronautical Charting Office (NACO) diagrams in November 2007. As of today, "hot spots" do not appear on NACO charts, although the hotspots appear on Jeppesen airport taxi diagrams, available through paid private subscription services. The ASF strongly encourages the FAA to identify these areas on government charts as soon as possible. The ASF will then be able to post the information online and make it available to pilots and the public.

2. Safety Advisors discussing Runway Safety

The AOPA Air Safety Foundation's 14 *Safety Advisors* describe aviation specific topics in subjects ranging from aircraft icing to weather strategies. Safety Advisors are free to the public, available online (www.aopa.org/asf/publications/advisors), distributed by ASF by mail, and available at safety seminars.

To help combat runways incursions, the *Operations at Towered Airports Safety Advisor* gives pilots the information they must know to operate more safely at busy towered airports. First published in 1998, this Safety Advisor has been updated and republished three times most recently in May 2007. In 2007, ASF distributed almost 17,000 copies of the *Operations at Towered Airports Safety Advisor* by mail and more than 34,000 copies have been download over the past three years.

Since collision avoidance – both in the air and on the ground - is one of the most basic responsibilities of a pilot operating an aircraft in visual flight rule conditions, the *Collision Avoidance Safety Advisor* shows pilots how to visually identify potential collision threats and covers procedures that can lessen the risk of a runway incursion. First published in 2001, this Safety Advisor was last updated in August 2006. More than 20,000 copies have been downloaded over the past three years.

In August 2004, a 27-page pocket size brochure on A Pilots Guide to Safe Surface Operations was included in *AOPA Pilot* magazine that was distributed to approximately 410,000 members. The brochure was produced by the FAA Office of Runway Safety in coordination with the AOPA Air Safety Foundation.

In August 2005, a second 27-page pocket size brochure on Safe Flight Communications was included in *AOPA Pilot* magazine that was distributed to approximately 410,000 members. The brochure was produced by the FAA Office of Runway Safety in coordination with the AOPA Air Safety Foundation.

3. Runway Safety Flash Cards

In 2004, the AOPA Air Safety Foundation created Runway Safety Flash Cards (supported by a grant from the FAA Office of Runway Safety) to help pilots better understand runway signage and markings. Flash cards are an effective way for pilots to learn about complex topics, and a helpful testing tool for flight instructors and pilot examiners. The front of each card displays an airport sign or pavement marking, while the back provides a description and information on the required pilot action. In 2007, the ASF distributed over 24,600 Runway Safety Flash Cards by mail alone. Flash cards are free to the public, available online (www.aopa.org/asf/publications/flashcards/), distributed by ASF by mail, and available at safety seminars.

4. Runway Safety Online Interactive Course

Created in 2003 by the AOPA Air Safety Foundation (supported by a grant from the FAA Office of Runway Safety), the Runway Safety online course is designed to help pilots avoid and prevent runway incursions by studying the various factors involved. It is a comprehensive program designed to train pilots by using interactivity, graphics, sound and animation. Flight instructors and others can also use the course in ground school and safety classes. Completion of the program takes approximately 45 to 60 minutes. The Runway Safety Course is free to the public, available online (www.aopa.org/asf/online_courses/), distributed by ASF by mail, and available at safety seminars. Since 2003, there have been over 65,000 course completions.

Impressed by the Runway Safety Course, the Airline Pilots Association (ALPA) and the FAA asked ASF to create a version for commercial pilots. This was completed in August 2005. Several airlines have made the course mandatory for their pilots.

In response to the 2006 tragic accident in Lexington, KY, the ASF distributed the Runway Safety Course to over 200,000 general aviation pilots in order to promote runway safety. In addition, the November 2006 edition of *AOPA Pilot* contained an article discussing the accident and some techniques that pilots can use to avoid similar problems. That edition of *AOPA Pilot* was distributed to approximately 412,000 members.

5. Air Safety Foundation Online Quizzes

Every two weeks, the AOPA Air Safety Foundation posts a new quiz that gives pilots a quick, easy, and interactive way to continually assess and expand their knowledge from the privacy of their own personal computer. In 2007, over 10,000 pilots participated in the Runway Safety quiz.

Action Plan

Recognizing that runway safety is a community wide issue that needs to be addressed, AOPA and the Air Safety Foundation commit to the following activities in 2008.

- The AOPA Air Safety Foundation will expand runway safety awareness in the June 2008 edition of *AOPA Pilot*. The magazine will feature an editorial on general aviation runway safety: the statistics; review of some of the more memorable close

calls; operations at towered airports; techniques for operating safely; and a view from the tower/air traffic control observations. The edition will also contain a "never again" article by a pilot who has had an incursion.

- The AOPA Air Safety Foundation will expand emphasis on runway safety in the more than 90 Flight Instructor Refresher Clinics conducted by the ASF in 2008 (about 4,000 instructors/attendees annually).

- The AOPA Air Safety Foundation will include an article in its *Instructor Report* that is distributed to all current certified flight instructors (over 90,000).

- In April, June and July, AOPA and the Air Safety Foundation will actively promote the Runway Safety Course through *ePilot* which is a weekly electronic newsletter sent to approximately 290,000 subscribers.

- The AOPA Air Safety Foundation will include a special runway safety module in the approximately 60 safety seminars scheduled for fall 2008.

We also recommend the following items as important actions the FAA can take in the short term to address the problem of runway incursions.

- The FAA must once again make runway safety a national priority. The Director of the Office of Runway Safety should report directly to the FAA Administrator.

- The FAA should examine the feasibility of requiring a specific air traffic control clearance to cross each runway as recommended by the NTSB.

- The FAA should continue the Runway Incursion Information Evaluation Program (RIIEP) that is set to expire in July 2008. In addition, the FAA needs to ensure that the data collected is being analyzed and used to implement cost-effective corrective measures in a timely manner.

- The FAA should identify "hot spots" on National Aeronautical Charting Office (NACO) charts as soon as possible.

- The FAA should work closely with the aviation community on an educational and outreach campaign to pilots to prevent runway incursions.

Conclusion

As I stated at the beginning, safety requires constant vigilance. Safety and education are at the heart of AOPA's and the Air Safety Foundation's mission. We look forward to working with the Subcommittee and the aviation community to ensure our runways are safe. And, we will look to the FAA for their leadership and partnership in this critical endeavor.