

*Runway Safety*



Statement of the  
Air Transport Association of America, Inc.  
before the  
Aviation Subcommittee  
of the  
House Transportation and Infrastructure Committee

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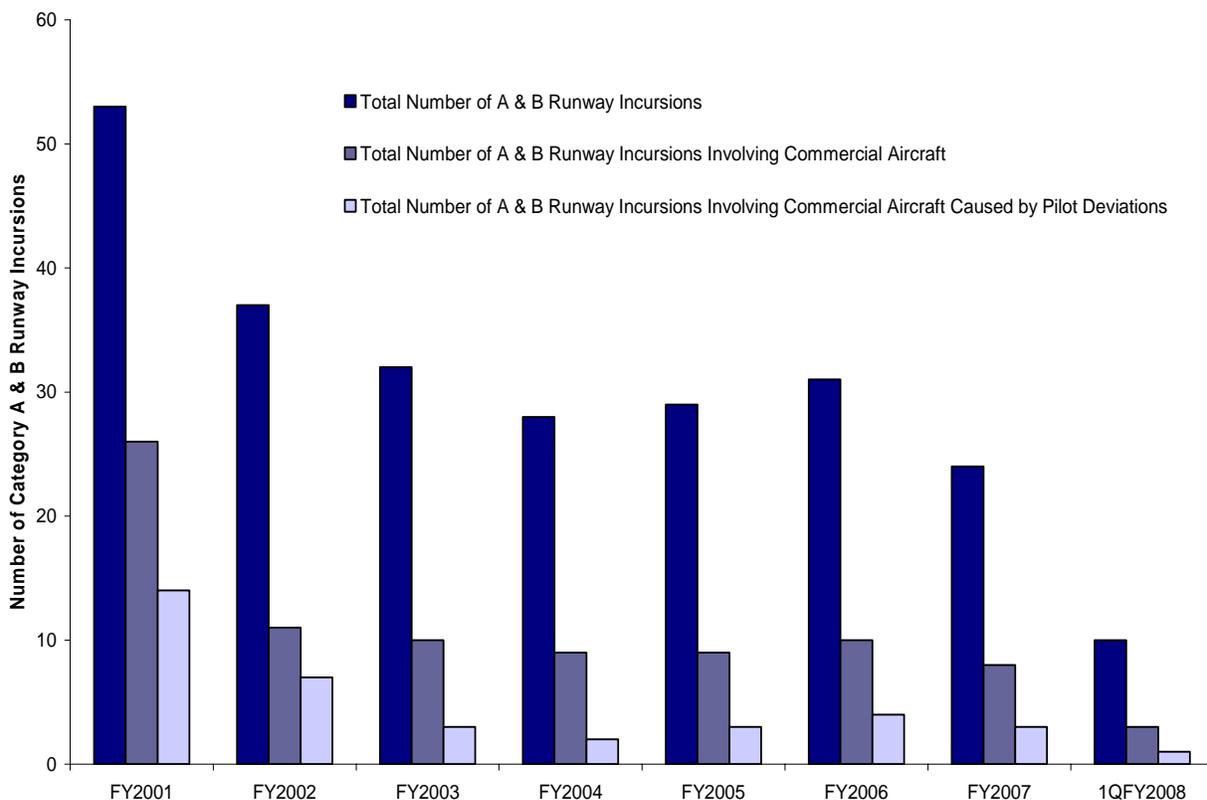
AIR TRANSPORT ASSOCIATION

The aviation community for years has been working hard to continuously improve runway safety. This effort is both critical and collaborative. All involved realize the importance of reducing the risk of runway incursions and that this responsibility is never ending. Today’s hearing is a welcome added focus on the aviation community’s unrelenting effort to make the airport operating environment as safe as possible.

We have reemphasized our efforts. Indeed, yesterday ATA member airlines and other interested members of the aviation community held a Runway Safety Awareness Day. Roughly 70,000 pilots at 50 airlines each received a letter reinforcing the industry’s collective commitment to improving runway safety.

FAA data indicate that the frequency of serious runway incursions – those classified as Category A or B – has decreased steadily since 2001, with commercial operations consistently accounting for approximately one-third of the total. Narrowing the focus further, the number of serious incursions involving commercial operations that are attributed to pilot deviations has also declined.

**Pilot Deviations Remain a Small Contributor to Serious Commercial Runway Incursions**



Source: Federal Aviation Administration

This is the result of well-thought-out collaboration among stakeholders. Recognizing this achievement, of course, does not mean that we should be satisfied with it. But it does give us the confidence to know how to work toward greater improvements. That is the task before us.

In this, as in so many other safety-driven endeavors, the aviation community looks to data to proactively identify what aspects of a problem require additional scrutiny. We can call upon multiple, systematic sources of safety-related information to understand better the nature and extent of the risks that confront us. Our analytical abilities have advanced to the point where we can assess future vulnerabilities and, therefore, do not have to rely exclusively on what has happened in the past. This means that, in the context of airport surface operations, we can not only identify overall trends but also the locations on airfields that could be prone to incursions.

Much of this information comes from an array of aviation safety databases, some compiled within airlines and many created by other stakeholders. Ongoing human factors research is also a very useful tool. As this suggests, we rely on the empirical, not the anecdotal. This is as it should be. Runway incursions are a serious risk. We must properly comprehend the different facets of the problem and determine how best to respond to them. We cannot fritter away valuable resources by acting on uninformed notions of what must be done.

Using this knowledge and disciplined analysis, we can effectively shape the additional measures needed to lessen incursion risks and to refine those measures that have already been undertaken. Enhanced taxiway and runway signage, lighting and markings; special emphasis pilot and air traffic controller training; and accelerated installation of state-of-the-art airport surface detection systems are some of the tangible products of this comprehensive approach.

Our joint responsibility is to build upon these and other accomplishments. This is a continuous process; we recognize that there is more to do. We have the tools and the commitment to do so.

#### **ACTIONS UNDERWAY TO REDUCE THE RISK OF INCURSIONS**

As previously mentioned, thorough data evaluation is the indispensable first step in reducing the risk of surface movement incursions. The Aviation Safety Action Partnership (ASAP) and the Flight Operational Quality Assurance (FOQA) programs have been used to identify runway safety risks. These are longstanding voluntary programs that reflect the aviation community's commitment to improving safety

collaboratively. ASAP is designed to encourage voluntary reporting of safety issues and events that come to the attention of employees of certificate holders. FOQA programs involve the collection and analysis of data recorded during taxi and flight to improve the safety of operations, air traffic control procedures, and airport and aircraft design and maintenance.

The Commercial Aviation Safety Team (CAST) and Aviation Safety Information Analysis and Sharing (ASIAS) are also important parts of this effort. CAST began its invaluable work in 1997 with the mandate from the then-FAA administrator to reduce dramatically the commercial aviation fatality rate. Despite a 40 percent increase in air carrier operations in the last decade, that fatality rate has plummeted. ASIAS is a system developed cooperatively by FAA and industry that enables users to share, integrate and analyze aviation safety information.

Because of these data evaluation efforts, we understand the airport surface operating environment far better than we ever have. That more informed perspective has resulted in an array of initiatives designed to decrease runway incursion risks, including:

- Reducing distractions during the taxi phase of the flight
  - Streamlining flight deck procedures to eliminate unnecessary workload
  - Accomplishing as much flight deck work as possible at the gate prior to pushback
  - Keeping crew members ‘heads up’ at crossings of runways and taxiways
  - Reinforcing sterile flight deck procedures
- Emphasizing the use of consistent, standardized air traffic control verbiage and clearances
- Elevating awareness of incursion risks
  - Reinforcing the longstanding CEO commitment to safety
  - Partnering with unions to focus attention on risks
  - Depicting ‘hot spots’ on pilots’ airport diagrams
  - Participating in regional meetings with FAA and conducting local flight crew meetings involving chief pilots
  - Coordinating an industry wide Runway Safety Awareness Day
- Enhancing pilot training
  - Including runway incursion simulations in recurrent simulator training
- Leveraging the work of existing Runway Safety Action Teams (RSATs)
  - Established at regional and local levels to address airport-specific risks

- Active participation by all key stakeholders
- Accelerating the installation of ASDE-X (advanced surface movement detection equipment)
- Enhancing signage, lighting and markings on operating surfaces
  - ◆ Installing runway lead-on lights
    - Modified color pattern of in-pavement lights provides visual indication that the aircraft is approaching a runway
  - ◆ Enhancing surface markings
    - Modified taxiway paint markings provide a visual indication that the aircraft is approaching a runway
  - ◆ Developing Final Approach Runway Occupancy Signals
    - Automated system being tested at Long Beach Airport
  - ◆ Developing runway status lights
    - Surface and terminal surveillance systems, such as ASDE-X and Airport Movement Area Safety System, detect the presence and motion of aircraft and vehicles on or near a runway. In-pavement runway entrance lights are illuminated if the runway is unsafe for entry or crossing, and in-pavement takeoff hold lights are illuminated if the runway is unsafe for departure.
    - Tested at Dallas-Fort Worth; being tested at San Diego Lindbergh Field
- Reconfiguring taxiways to eliminate confusing intersections and reduce runway crossings (reconstructing taxiways and adding runway end-arounds)
  - ◆ Runway 8R end-around taxiway at Atlanta Hartsfield-Jackson International Airport opened in 2007
    - The FAA estimates that the runway 8R end-around taxiway will eliminate an average of 700 runway crossings per day at Hartsfield-Jackson
    - Similar initiative at Dallas-Fort Worth International Airport

#### EMERGING TECHNOLOGIES THAT WILL IMPROVE THE OPERATING ENVIRONMENT

Considerable research and evaluation is being devoted to determining how best to apply technology to enable pilots and air traffic controllers to have better situational awareness in the airport surface environment. The introduction of NextGen, particularly the application of ADS-B, is the ultimate goal in this effort to leverage technology to make the airfields safer. In the meantime, the following initiatives are underway:

- ASDE-X
  - ◆ Enhanced portrayal of the airfield for controllers
  - ◆ Controller must still convey warnings to the crews of threatened aircraft (although efforts to link to existing Traffic/Collision Avoidance System to provide real-time warning directly to the crew show promise)
  - ◆ ASDE-X is viewed as an interim measure pending ADS-B deployment
- Flight deck moving map displays
  - ◆ Resemble navigational displays on automobile dashboards
  - ◆ Real-time information about location of aircraft on airport surface
- Head-up displays
  - ◆ Provide pertinent operational information to flight deck crew on a transparent, fold-down device in front of the windshield
  - ◆ Reduces need for the crew to scan the instrument panel and therefore allows greater concentration on the outside environment

#### SHORT-TERM EMPHASIS INITIATIVES

The foregoing initiatives represent a broad spectrum of undertakings involving crews, controllers, air carriers, airport operators and the FAA to improve the safety of the airport surface operating environment. We believe that three items are worth special attention as short-term initiatives to lessen further the incursion risk. They are:

- Focusing on eliminating flight deck distractions for crews during the taxi-out and taxi-in phases of the flight
- Improving the airport physical operating environment by continuing to eliminate confusing taxiway and runway intersections, adding signage and lighting, and introducing technology such as the linked ASDE-X and TCAS system
- Implementing a voluntary safety reporting system for air traffic controllers, similar to ASAP programs employed by airlines

#### CONCLUSION

Solving the runway incursion risk requires an ongoing collaborative effort by all aviation industry stakeholders. We have the means to further improve our safety record; those means need to continue to be applied in a systematic way. ATA and its members are committed to this endeavor.